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Bovine Pneumonia: Is it Identical with Hæmorrhagic Septicæmia (Barbone)?

By Professor S. H. Gaiger, University of Liverpool.

From time to time various writers have recorded what they believed to be hæmorrhagic septicæmia in cattle in Britain. A few years ago confusion arose as between bracken poisoning and hæmorrhagic septicæmia, though it was soon shown that there is very little in common between these two conditions.

I am tempted to ask the question at the head of this article for two reasons. In the *Journal of Comparative Pathology and Therapeutics*, Vol. 43, Part 3, 1930, Tweed and Edington have published investigations into bovine pneumonia and their account seems to leave no room for doubt that they consider the condition to be identical with the pectoral form of hæmorrhagic septicæmia. The second reason is that I occasionally receive letters from practitioners in which they speak of outbreaks of hæmorrhagic septicæmia in their practices and proceed to describe bovine pneumonia.

Below I give a comparison of certain features of true hæmorrhagic septicæmia as seen in certain parts of Europe, Egypt, India, the Philippines, etc., with those of bovine pneumonia as investigated by Jones and Little in America (*J. Exp. Med.*, XXXIV, p. 541, 1921) and by Tweed and Edington in Britain.

Hæmorrhagic Septicæmia.	**Bovine Pneumonia.**
1. This is a true septicæmia and there is no difficulty in finding bipolar bacilli in the blood by the microscope, either during life or after death.	1. Pasteurella organisms cannot be found in the blood by the microscope.
2. There is no difficulty in cultivating the pasteurella from the blood in pure culture, even using small quantities of blood such as a loopful.	2. Jones and Little's cases yielded no cultures from the blood even when quantities of 15 c.c. were sown. In one cow even the lung failed to yield cultures. Cultures obtained from the lung were not all pure. In two cases in calves the lungs of one yielded *P. boviseptica* and the other *B. actinoides*. Tweed and Edington obtained the pasteurella from the lung in pure culture. Blood cultures were negative except in the case of two calves.
3. The symptoms are always intestinal, but sometimes cases are met with which show pectoral symptoms as well and even cerebral symptoms. Quite commonly there are present subcutaneous œdematous swellings, especially in the dewlap and under thorax and abdomen. In the pectoral form the animal drowns in its own exudate and froth pours from the nostrils.	3. In Jones and Little's cases there was no gastro-enteritis except in one case. In Tweed and Edington's cases only one-half showed colic and diarrhœa. None of these authors records subcutaneous œdematous swellings.
4. On *post-mortem* examination there is present, even in pectoral cases, a diffuse hæmorrhagic gastro-enteritis extending from abomasum to anus with the contents scanty and deeply blood-stained. There is no ulceration. There is always present a marked hæmorrhagic endocarditis, the lesions being principally on and around the bases of the columnæ carnæ.	4. Jones and Little's one case, referred to in 3, showed the mucosa deeply reddened. Their cases showed no endocarditis and in some of their examples they say "heart normal" or "intestine normal." Tweed and Edington's diarrhœa calf showed the intestines inflamed and ulcerated.
5. The pasteurella isolated in cultures is of very high virulence for several species of animals on inoculation; a fraction of a cubic centimetre will kill bovines and rabbits in 24 hours. In rabbits a constant *post-mortem* lesion present (amongst others) is an intense hæmorrhagic tracheitis.	5. Jones and Little divide their strains into three Groups on cultural and morphological grounds. Neither Group I nor II showed any particular virulence. Group III was pathogenic for the rabbit, though the authors consider this a variety of Group II. Tweed and Edington place their recently-described strains into Group I (Jones and Little) but none of the strains showed any noteworthy pathogenicity.

In view of these contrasts the writer is of opinion that bovine pneumonia, as investigated by Jones and Little in America, and Tweed and Edington in Britain, bears no resemblance to true hæmorrhagic septicæmia as it occurs in parts of Europe, Egypt, India, the Philippines, etc.

The use of the term hæmorrhagic septicæmia for such outbreaks of pneumonia in cattle is not only inadvisable and confusing, but inaccurate.

The organisms studied by the authors mentioned, seem more likely to be strains of pasteurella organisms normally present in the respiratory tract, which have been able to

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invade lung tissue when the host's resistance has been lowered by journeyings by road and rail, improper housing, feeding, and hygienic conditions generally.

It should be borne in mind that the surest way of finding pasteurella organisms is to search for them in the lungs of any species of animal.

Some practitioners have used commercial hæmorrhagic septicæmia serum with apparent success in bovine pneumonia outbreaks and concluded in consequence that their diagnosis of hæmorrhagic septicæmia was correct. It should be remembered, however, that normal serum has been found to be of equal value with specific antiserum in pasteurelloses in animals.

It would be preferable to reserve the term hæmorrhagic septicæmia for the condition known abroad as barbone and which has not so far been shown to exist in Britain.

Cattle Disease in Northumberland.

"Attempts are to be made by the Northumberland Agricultural Society to enlist the more active co-operation and financial support of the Ministry to eliminate non-notifiable diseases among flocks and herds which in Northumberland alone are causing, it is estimated, losses to farmers of at least £30,000 per annum," says the *Newcastle Weekly Chronicle* of January 23rd.

"This important announcement was made by Earl Grey, who presided at the annual meeting of the society at Hexham.

"'The special committee set up by the society has been very active during the past year in investigating non-notifiable diseases of animals in the county,' said Earl Grey.

"'There is a strong feeling among the most prominent flock masters in the county that a good deal of that loss could be avoided if sufficient investigations were conducted, perhaps not so much by the great scientific research stations as by persuading the Ministry to institute intensive local investigations.

"'In these they would have to co-operate more actively with those now engaged in the local investigations.

"'A good many people connected with the National Farmers' Union, the Landowners' Association and the various agricultural societies and bodies throughout the country have backed up the efforts of the Diseases Sub-Committee of your society and we have advanced a good way towards raising a fund of £1,000 more actively to combat preventable disease.'"

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"Some Observations on Every-day Dog Practice."*

By G. H. Livesey, M.R.C.V.S.

Mr. Livesey, in his opening remarks, stressed the importance of impressing one's individuality upon one's clients in order to build up a personal practice. This was largely to be attained by cultivating method.

Describing methods which he, personally, had proved to be successful, the speaker drew attention to the supreme importance of gentleness and firmness. He said that the public only too often estimated a man's skill by the way he handled his patients. Mr. Livesey then described his methods of handling and controlling both cats and dogs, and of making examinations of the mouth, ears, and limbs.

In demonstrating the correct method of opening a dog's mouth, the speaker said: "Insert your thumb behind the canine tooth and on to the roof of the mouth. If you are nervous you can protect yourself by using a bandage on the thumb. With short-nosed dogs, like bulldogs, you can get your thumb on the roof of the mouth from the front, taking care not to compress the nostrils. The very fact of your doing that shows that you have confidence in yourself, and your client gets confidence in you."

Mr. Livesey continued: "In regard to the dispensing of medicine, many dogs require medicine and I think a very important thing is to let the client feel that you are giving your personal attention to the dog and that dog only. Often the mistake is made of giving a proprietary medicine or medicines made by wholesale druggists, and if the public think they are getting "stock" stuff they begin to distrust you. All these things seem trivial, but I can assure you they are exceptionally important in making a personal practice.

"I was speaking just now about putting a dog on the table—you cannot adopt the same method for a cat. If a cat is brought to you, say, in a basket, you should open the flap of the basket and put your hand through carefully and take the cat by the shoulders—*not* by the scruff of the neck. You can always prevent a cat from bolting by putting it on the table and letting it put its two front paws on the edge. The animal will then stay there, but if you put it in the middle of the table it will try to get off. With regard to opening its mouth, there is no need to touch the teeth. The cat will open its mouth if you just tilt the head backwards—the jaws will come apart. Keep the head back and the mouth will remain open, but to try and push anything into the mouth will make a cat struggle.

"Concerning the dog's mouth, a common requirement is scaling the teeth. I have watched this done on numerous occasions and have been surprised at the number of men who try to scale teeth with tape round the animal's jaws. I do not know how they do it. You should do your work thoroughly and do inside as well as outside. Follow the plan of putting your thumb on the roof of the mouth. I used to finish off with weak hydrochloric acid. Acid sodium hypophosphite is also a very useful tooth powder.

* Report of an address delivered before the Lancashire Division, N.V.M.A., at Manchester, on November 28th, 1930.

Restraint.—After a few years I gave up restraint. I found that, as practice went on, one did less and less under general anæsthesia, and that the majority of operations required in general practice could be better done with local anæsthesia. The restraint in the cat is better done with a rug. Put a rug round the shoulders, it gives you all the restraint you require. These little creatures do not forget. They are much more likely to make friends with you if carefully handled, and that is an asset.

" In removing a claw or a digit, use a local anæsthestic and let the dog see what you are doing.

" One of the most important things is to examine carefully the nose and mouth. It is necessary, in estimating health or disease, to keep the nose and mouth under close observation. The state of a dog's nose is supposed by many to indicate health or otherwise. I think when he has a dry nose he is liable to take any disease that is coming along. A dry nose is often a result of distemper, and you will often get more benefit by cleansing the nose and mouth than by dosing with drugs. Both for dogs and cats when the nose is dry, a weak solution of carbonate of soda is very good for getting rid of the mucus.

" I have just hinted to you that in getting these results I am not a believer in force; I prefer deception. For instance, where a bitch has had pups and will not let you handle her, if you get the owner to hand you a pup, so long as you have the pup in your hand, the bitch will never snap at you.

Pain in a Dog as Evidence of Disease.

" Some dogs are very nervous, but others are more patient and do not give you any indication of the amount of pain felt. Many dogs will howl if you handle the neck; the pain may arise from many causes. Aspirin is one of our most useful drugs for allaying pain as well as for many other conditions. If a dog is only suffering from a chill or cold, aspirin will take it away. I am told that some veterinary surgeons give 5-grain tablets of aspirin three or four times a day. I think 3 grains is quite enough, and it may be given in the form of a powder.

" One sometimes gets, as an example of pain in a dog, an animal that cries out and snatches up the hind leg and will not put it down. You may examine it and find nothing wrong. Probably you order hot fomentations and in two or three days the pain is much less. But in time the leg is held up more, the muscles atrophy, and you get the hind leg permanently held up. The trouble is a slip of the knee-cap; the dog's knee is weak. It is not pain, but extreme fear, that prevents weight being put on the limb, and with coaxing it is astonishing how you can get the dog to straighten and use the leg. I find the following method excellent in these cases: I obtain a little piece of cane with a swivel at one end. Get the owner to walk the dog carefully for about ten minutes each day *very* slowly. The idea is to get the dog to put its weight equally on each leg. You must have a stick attached to its collar or you cannot control the sudden rush forward each time it has to put its foot to the floor. The trouble is nearly always caused by the dog running fast and turning suddenly. I can assure you it is easily cured with patience and on the lines indicated."

The Anæsthetics Act.

The preceding night, continued Mr. Livesey, he had his attention drawn to a paper by Mr. Noel Pillers on the Anæsthetics Act, and he was very interested because this subject was discussed in September at the Congress of Special Libraries at Oxford. Mr. Livesey then gave an account of what transpired at Oxford and of the views expressed by various members of the so-called " Zoophile " societies. He expressed his personal view that the Act was illogical and unworkable, and should be repealed. But the " Zoophile " societies would want something in its place. He emphasized the point that it was for the veterinary profession to lead the public in this matter and to state what was useful, necessary, and practicable; and that it was deplorable that outside bodies should be the ones to promote legislation of this nature, while our own profession was ignored or only consulted at a very late stage. This was a matter for the local societies and the National Association, and he hoped it would receive early attention.

Concerning Operations.

The speaker, proceeding, observed: " With regard to operations, I think the value of antiseptics is often overrated. It is surprising what value there is in soap and water. Speed and dexterity are all-important. Consider the case of castration of a young cat. I think the man who goes through the long process of clipping hair from the site and giving chloroform is unwise: In my view this is quite uncalled for. The kindest way is to roll the cat up in a towel, make a single incision, and remove the testicles by torsion and traction. It is soon over.

" Regarding ovariotomy, I used to give a cat chloroform, make a single stab incision, and then insert my finger into the peritoneal cavity, follow the horn of the uterus and get hold of the ovary and twist it off—then bring the other horn of the uterus into the same wound and remove the second ovary in a similar manner. Stitch with three stitches—I took these out 12 hours afterwards. I used to get cats from all over the country for this operation, and I always adopted the same method. The less the wounds are handled the less are you likely to have trouble.

" For tumours, I nearly always used a local anæsthetic. Before taking out the tumour, have a look at the skin and area of the operation before making your first incision. In order to avoid disfiguring, if the tumour has a pedicle, get your pencil and draw a line round the site and do not cut outside your line. It is best to make your wound in the direction of the muscles. Many practitioners do not trouble to do neat enough work. Cases were brought to me many times with most unsightly scars left behind after operations. One often comes across tumours in a fat dog. Sometimes there are two great lumps of fat on either side of his loins and you are asked: ' I think my dog has a tumour, can you tell me what it is? ' One knows they consist of kidney fat and I should like someone to tell me why it is a dog grows these huge lumps of kidney fat. You only see them in the dog and I have not noticed them in other animals. Nearly always you will find the dog suffers from nephritis. There is no doubt that the commonest disease in mature dogs is nephritis. Why is it that the dog should so frequently suffer from kidney disease and yet show no signs during life that

would enable one to diagnose this condition? Retention of urine may have something to do with it. What causes kidney trouble in the first place I do not know, unless it is a sequel to distemper.

"With regard to distemper sequelæ, I have a question concerning chorea to bring before you. If you grant that chorea is always a sequel to distemper, this question arises and it is of great legal importance: What interval of time may elapse between distemper and the onset of chorea? I have had an interesting case that arises on that point." Mr. Livesey discussed this question at some length, especially in its legal aspect, and gave instances of cases, of which he had known, where intervals of seven to nine months, and even fourteen months, had elapsed, and he asked for the experience of others. For the treatment of chorea he said he had had most beneficial results from the use of arsenic, either as arsenic bromide or as Donovan's solution.

Now that it had become a common practice to give arsenic to greyhounds, the time might very soon arrive when they might be faced with an increase in cases of arsenical poisoning. It was not easy to diagnose, and he thought they should be wise before the time, as there might be trouble similar to that which was causing so much discussion in medical circles.

Mr. Livesey finally dealt with the attitude of the profession towards the various schemes for the treatment of animals of poor people. He urged his hearers to be sympathetic to such work, as fulfilling a public demand. If this work was not carried out by professional men, it would be, and was being, done by quacks, to the detriment of the animals. There should be a definite policy governing the profession in these matters, and members should work together under the guidance of some central authority, such as the National Association, both for the benefit of the public, the animals, and their own profession.

He concluded his address by commending to their notice a remark by H.R.H. the Prince of Wales, which equally applied to the veterinary profession—concerning the importance of "the four C's"—Contact, Consultation, Confidence, and Co-operation.

Discussion.

Major W. G. Burndred, in opening the discussion, said: The subject could not have been put in better hands than Mr. Livesey's. There is so much material in his address that it really needs a lot of thinking about for some time. I agree with Mr. Livesey in his opening remarks dealing with the psychological aspect of veterinary practice. With regard to clients sending for the nearest veterinary surgeon or one veterinary surgeon in particular, you must make yourself essential to a client and give your best attention to his or her cases. I agree that the question of anæsthetics should be left to the practitioner, and I think a general anæsthetic promotes fear in an animal. You cannot be too careful in dealing with anæsthetic preparations. I should like to ask Mr. Livesey for his opinion on the best method of destroying small animals. I have used prussic acid, but sometimes a client likes to know what poison is used.

Mr. Warwick Fowle expressed his thanks to Mr. Livesey. He wished to know if Mr. Livesey knew any cause or cure for the apparent sexual attraction which some male dogs had for other male dogs. Castration was of no use in such cases. He had put petrol on their backs and had tried several other things, but with no success. With regard to Mr. Livesey's question about chorea, he had actual proof of a period of five months elapsing from the distemper to the onset of chorea. He had attended a case of chorea in which the owner of the dog stated that it had had distemper twelve months previously, but he had no proof. With reference to luxation of the patella, he could confirm what Mr. Livesey had said about the cure, as he had adopted it on many occasions with complete success. He agreed with most of the other points raised, but with regard to kidney fat he did not agree that it occurred mostly in fat dogs. In his experience, it was met with mostly in thin dogs. The fat fox-terrier would often get it, but it was met with in whippets a great deal.

Mr. K. D. Downham expressed his enjoyment at listening to the address, and said he would have liked to have heard something about hysteria in dogs. A friend of his in practice always used chloroform for castrations, as the owners seemed to like that method better than any other. He referred to the use of X-ray appliances, which he thought might be used to advantage more than they were.

Mr. W. Walker stated that he had enjoyed listening to Mr. Livesey and felt that he had learnt many "tips." Certainly the problems one met with in canine and feline work were very considerable. With regard to abscesses in cats, one met with cases which looked like a swelling in the lower jaw or the throat, and he would like to know the cause.

The Reply.

Mr. Livesey, in reply, said: I am obliged to you for receiving my address so kindly, and hope it was not long to the point of weariness. I will try to reply to the points that have been raised. I do not belittle the use of antiseptics, but I put them subsidiary to speed and dexterity. The point about dogs chasing one another and sexual attractiveness to one another is one that has never been explained. It does exist, and it is supposed to have something to do with the anal gland. Treatment of that gland may satisfy clients in some cases. I have tried antiseptics and strong-smelling dressings, but only with moderate success. Perhaps the trouble may be in the brain and be a peculiar sex perversion. I think I am right in saying it occurs where there is atrophy of the testicle, but I am not sure on that ground. I think it is reasonable to suppose there is something wrong with the brain of the animal, as there is, I believe, a parallel in human pathology.

With regard to skin sutures, I meant to have mentioned that not only is it necessary to bring the edges of the wound together, but where one has been longer than usual over an operation, or where the skin is not comfortably in close apposition, I found it beneficial to give a stimulating dressing, *e.g.*, vaseline and oil of lavender—it will stimulate the tissues very much. With an abdominal operation, instead of putting a pad of ordinary wool on the belly, I have put on a pad of thermogene, and the results have been remarkable in promoting healing.

Concerning hysteria, I am glad to say I have not had a case; I had given up practice at the time it came to this country. So far as castration of the cat with chloroform is concerned, let those do it who like it; I do not think it is necessary. With reference to a cure for chorea, I think I have tried everything I know, and if there is no rise in temperature I think aspirin is the best thing you can give, but in chronic cases arsenic is best. Undoubtedly the best of the lot is bromide of arsenic, or Donovan's solution. It is largely a matter of chance whether an animal will get better or not. *Re* abscesses in a cat's throat—sometimes they arise from inflammation of the salivary glands. When I have to deal with that condition, I look for a foreign body. As a result of swelling, I have been able to extract, in a very large number of cases, needles and thread, which I should not have suspected. Splinters of bone and other foreign bodies cause abscesses, and I think they are things to look for. One of the most frequent abscesses met with is on the cat's cheek—usually due to a defective tooth.

Concerning euthanasia, if I had an animal I wanted to put out of the way, I should shoot it. There is no mistake about this being the quickest and most humane but, of course, you cannot always advise it to a client. I used to suggest prussic acid, and if clients did not like

The Position of Parasitology in the Veterinary Curriculum.

By Professor S. H. Gaiger, University of Liverpool.

The Council of the Royal College of Veterinary Surgeons, at its meeting of January 9th, decided that Systematic Parasitology should take its place in the new Five Years' Curriculum as a subject of examination with its own examination table, the title to include the subdivisions Protozoology, Helminthology and Entomology.

This decision was not lightly taken. The matter was first discussed and decided upon by vote at the Examination Committee Meeting in July, 1930, but the whole curriculum went into the melting pot with the appointment of a Curriculum Sub-Committee in October, 1930. At the meeting of the Examination Committee of January 8th, 1930, this question was again fully discussed and decided by vote, the decision being confirmed by Council on January 9th.

Few will be found who will dispute the immense importance of a knowledge of this subject to the veterinary surgeon practising in this country. The subject embraces such important conditions as coccidiosis, distomatosis, parasitic gastritis, parasitic bronchitis, strongylosis in equines, parasitic mange, infestation with tapeworms, ascaris, heterakis, anchylostomes, the maggots of the sheep, nostril-fly, and warble-fly, and many other parasitic species. The symptoms, diagnosis, prevention and treatment of these conditions will all be examined in, under this heading. Just as Bacteriology embraces a study of bacterial species, so will Parasitology embrace the study of the morphology and life history of important species of the protozoa, cestodes, trematodes, nematodes, ticks, mange and other skin parasites, and flies of various species. Practical studies under this head will include making and staining blood films; flotation and other technique for the study of coccidia and worm eggs in fæces or skin scrapings for mange parasites; methods of collecting, preserving and examining cestodes, trematodes and nematodes; clinical helminthological methods; practical demonstrations of ticks in their various stages, the various mange parasites, bot-flies, warble flies, blood-sucking flies, the ked, mosquitoes and fleas.

When one contemplates the magnitude and importance of this subject one wonders how we have gone on till now without the provision which has now been made for examination in Systematic Parasitology. The simple truth is that this subject has, till now, neither been taught nor examined in, in the manner proposed for the five years' curriculum. A smattering of a few of the more important life-histories of some parasites is all that has been possible in Zoology, as, for example, those of the liver-fluke and some of the cestodes. Zoology teachers and text-books have sufficient in hand to teach the principal zoological types, the amœba, the earth-worm, the crayfish, the frog, the pigeon, the mammal, etc., without digressing more than to a very small extent upon parasitic species. The young student has sufficient in pure zoology to absorb his time, and from his lack of acquaintance with anatomy and histology is not in a position to grasp the life histories of the parasites in his first year. He touches on them, with a promise of more in the later part of his curriculum, but the opportunity at present only reaches him in Medicine and Meat Inspection in his final year, by which time he should be doing other things than the zoology of the parasites. The consequence is that our graduates under the four years' course go out into the world with a deplorably inadequate working knowledge of the parasite and parasitic diseases. They are mostly inadequately equipped for dealing with an important section of animal diseases and incapable of intelligently discussing parasitic problems with their clients, and others who have studied the subject. This means a loss of income at a time when every avenue which may bring in an income in practice should be wide open.

The new examination table links up into one subject the zoology of the parasites taken from Zoology, the protozoa taken from Pathology, and the helminthological, entomological and protozoal diseases hitherto dealt with under Medicine. The candidate will require to have a more adequate knowledge of morphology and life histories than he need have under the present system. The removal of the protozoa from Pathology will give more time for pathology and bacteriology and will avoid that calamity in professional education, namely, having to teach a subject over two sessions with one examination at the end of that period. The splitting of Pathology is not advocated by Professors of Pathology, but has been pressed by Professors of other subjects! The removal of parasitic diseases from Medicine will relieve that subject and should go a long way towards satisfying those who wanted the whole of the extra year in the new curriculum to be devoted to Medicine, Surgery, and Clinical Instruction. Incidentally, the examination in Meat Inspection will become wholly an examination in the inspection of meat without time being taken up by examining in parasitology.

Clinical Parasitology, *i.e.*, the actual application of the practical parasitological methods to clinical cases, will remain with Medicine. The technique of these methods will be taught and examined under Systematic Parasitology.

In the medical curriculum there is no examination table in Parasitology, but there soon would be if human beings were such museums of parasites as our animal patients are. The time has come when veterinary science should stand on its own feet and steer its own course where necessary.

One hears much about our need to "avoid training specialists." This has become a familiar slogan with those who advocate devoting the fourth and fifth years

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that, I advised an anæsthetic first, followed by prussic acid. I most frequently gave an injection of morphia followed by chloroform, but there is often the unpleasantness of the animal being sick. You can give an enema of chloral which is well tolerated, and you can then give chloroform until the animal is dead. I used to do many in this way and was prepared to spend some time over it. That is not practicable in ordinary practice. With regard to the use of coal gas, I am strongly against it. Chloroform is all right if properly administered, but even then it is sometimes distressing. I think, at the present moment, our best medium is prussic acid of full strength and a sufficiently large dose. The whole question is very controversial and is certainly one which will bear thorough discussion. It is already being considered by the R.S.P.C.A., who have appointed a committee to enquire into the whole subject, and I think our profession ought to take this matter up themselves and come to some agreement upon it and not leave it to the R.S.P.C.A. to say how we should destroy a dog or cat. Our profession should give a lead to the public in these matters.

of the new curriculum to medicine, surgery and clinical instruction exclusively, forgetful of the fact that the extra year in our curriculum was to relieve an all-round congestion. As long as a study of bacterial species is recognised as being necessary for our graduates to understand and cope with bacterial diseases, so long must a study of the animal parasites be necessary if they are to understand and deal with parasitic diseases. It is a curious misconception of the amount of training necessary to transform a student into a specialist in parasitology to claim that one session's instruction in that subject in our veterinary colleges will accomplish it. All that can be done in one session will be to give that amount of fundamental training in a subject which will enable the student to become a sound practitioner. The quack can treat parasitic infestations by rule-of-thumb methods, but the quack cannot give sound advice in preventive medicine as applied to parasitic diseases. The veterinarian can, if he gets the necessary training. It cannot be said that one year's instruction of an undergraduate in pathology makes him a pathologist.

The Protozoa are animal parasites, and as such, it is very appropriate to link them with helminthology and entomology.

I have found that the strongest advocates of the new examination table are the practitioners, which means that they know from practical experience the need of training in this subject.

The success of the new subject will almost entirely depend upon the finding of the right external examiners. One of them should certainly be a veterinary parasitologist, but I see no objection to the other being without a veterinary qualification provided he is a parasitologist of recognised standing. Suitable syilabuses will have to be drawn up by the R.C.V.S. for all sub-divisions of the subject and it is earnestly to be hoped that a high standard of examination will be set from the commencement. A high standard of examination in parasitology will force the affiliated schools to set a high standard for instruction in that subject, just as the high standard now set in pathology will raise the standard of instruction in that subject.

Personally, I doubt whether the schools which have not already got one or more special teachers in the sub-divisions of systematic parasitology will be able to train men for this examination unless they appoint such teachers, and I hope that this step will coincide with the coming into force of the new curriculum.

Shire Geldings.

With Shire geldings making 60 and 70 guineas in repository sales, the continued demand for good weight-shifting horses becomes the most encouraging feature in heavy horse breeding. A steady demand at 50 up to 60 guineas for brewery, railway, and town council horses has given an impetus to heavy horse production. It is being overlooked by some farmers, who are afraid to venture into horse raising, that no animal on the farm is more useful, or profitable, than a gelding, which will render good service at home for three to four years and then may make 70 guineas when offered for sale. Experienced farmers declare that among the moderns there is too great an inclination to breed for the stallion rather than the gelding trade. They maintain that there is no need for so many colts to be left entire. What is necessary is just sufficient of the right sort to keep the stallion trade a good one. The lorry should be kept in view rather than the show ring. *The Times.*

The Veterinary Profession in South Africa.

(2) The Struggle for Legal Recognition.*

Dr. H. H. Curson, F.R.C.V.S., Veterinary Research Laboratories, Onderstepoort, near Pretoria.

" It matters not how strait the gate,
How charged with punishments the scroll,
I am the master of my fate:
I am the captain of my soul."—*Henley.*

Introduction.

In narrating the endeavours that have been made to secure legal recognition for veterinarians, no mention will be made in this paper of the position in Natal. Fortunately for the pioneers of the profession in that Colony, the members of parliament, being generally men of education and vision, realised the immediate need for raising the status of our calling and thus made sure that only men of sound training would be permitted to attend to the requirements of stock farmers. Further, it is intended in a subsequent communication to relate the vicissitudes of the Natal Veterinary Board, the body instituted by Act 21/1899 to regulate veterinary affairs.

As no attempt was made in the Orange River Colony[1] to introduce a veterinary bill, discussion therefore centres on the Transvaal and Cape Colony. It will be convenient to take the latter first.

Cape of Good Hope V.M.S.

The main object of the Cape of Good Hope Veterinary Medical Society, inaugurated November 1st, 1905, was "to introduce before Parliament a bill with a view to protecting the general public against those who were not in possession of any diploma or other document to show that they were qualified to carry on the art and science of veterinary surgery and medicine."[2] A draft bill was drawn up in 1906 and handed to Messrs. van Zijl and Buissinne, attorneys and parliamentary agents of Capetown; but as a result of certain alterations, suggested by the Council, Royal College of Veterinary Surgeons, London, it was not ready for presentation to Parliament by the end of the year.

In subsequent years, although favourably commented on by certain members of the cabinet, the bill was never submitted to Parliament, chiefly owing to the belief that it would fail to pass.[3] That such a pessimistic view should have been taken is surprising, since early in 1907 the Minister of Agriculture (Hon. A. J. Fuller)[4] welcomed the Bill, stating " firstly, it is essential that the public should be protected from the operations of quacks; secondly, the measure will encourage only the best class of veterinary practitioners coming into the country."[5] In the Report of the Council of the Cape V.M.S. for 1908,[6] the view is expressed, in the event of the four colonies amalgamating, that " it would be advisable to combine with the Transvaal Society and Natal (if there be one) with the idea of effecting the object we have so long had in view." In 1910, however, when the question of a joint

* Dr. Curson's first article appeared in the *Veterinary Record* of September 27th, 1930 (Vol. 10, No. 39).

medical and veterinary bill for the Union of South Africa was raised by the Transvaal Veterinary Medical Association, the Cape was antagonistic, maintaining that " an Ordinance separate from that of the medical profession would be quite as potent. The only apparent advantage of the proposals, economy, is likely to prove disadvantageous, considering the relative positions of both professions upon . . . dairy inspection, meat inspection and other matters appertaining to public health . . ."[7] As will be described, a veterinary bill for the Union of South Africa was drafted the same year by the T.V.M.A. but whether financial support was given by the Cape and Natal Societies is not known.

After Union (May 31st, 1910) the Cape body almost ceased to exist, with the result that any effort towards the passing of a veterinary bill had to be initiated by the more energetic T.V.M.A. As a consequence of the Bloemfontein Conference in December, 1917, where the C. of G.H. V.M.S. was represented by Mr. J. Spreull, then S.V.O., Transvaal, a general meeting of the Society was held on January 9th, 1918, when it was decided to hand over the sum of £150 to the T.V.M.A. " for the purpose of promoting a Veterinary Surgeons' Bill (S.A.)."[8]

A copy of the complete Cape Veterinary Bill is not available[9], but one of the most important provisions was with regard to the registration of unqualified practitioners (see Appendix ii, p. 181). Unlike the British Act of 1881; not only was five years' practice prior to the passing of the measure laid down, but the candidate was also required to pass an examination conducted by qualified veterinary surgeons (as provided by Act 21/1899 in Natal[10]).

Transvaal V.M.A.

Within a year of the formation of the Transvaal V.M.A. (February 16th, 1903); a bill for the protection of the veterinary profession had been drafted. In introducing the proposed measure at a council meeting on January 30th, 1904, Captain (now Colonel) Irvine-Smith, the president, stated " it was not the intention of the Ordinance to reserve the Transvaal as a monopoly for the M.R.C.V.S.; on the other hand, they wished to establish a precedent by offering reciprocity to all comers, no matter of what nationality, so long as they held a diploma entitling them to practise in the country in which it was granted."[11] (See Appendix ii, p. 181). It is understood that during Stewart Stockman's term of office as P.V.O., Transvaal (1903-1905), Sir Richard Solomon, Attorney-General, was prepared to place the Bill before the Legislative Council, but Stockman apparently did not favour the proposed measure, for when the matter was discussed at a general meeting of the T.V.M.A. in 1904, a motion to proceed with the bill was defeated by Stockman and his supporters by a single vote.

In 1906, the T.V.M.A. approached the Commissioner of Lands (Dr. A. Jameson), who was also responsible for the Department of Agriculture, regarding the introduction of the Veterinary Surgeons' Bill, but the reply was to the effect that it would be more satisfactory to wait for an elected legislature.

Next came Responsible Government (1906-1910), and on September 30th, 1907, Mr. Christy, A.P.V.O., Transvaal, and retiring President of the T.V.M.A., stated at a general meeting of the Association that considerable pains had been taken to sound the views of members of the Legislative Assembly, but that " opinion was unanimous, that it was not advisable at present to bring forward the Ordinance, as there was every likelihood that it would be thrown out."[13]

Next year, apparently as a result of observations made on the bill by the Secretary of the Transvaal Medical Council, the Hon. Secretary of the T.V.M.A. (J. Chalmers) at a general meeting on June 27th, 1908, suggested the appointment of a sub-committee " to take up the whole matter and draft a small ordinance on the lines of that of the Natal Government."[14] Messrs. Chalmers, Christy, Gray and Hollingham were accordingly appointed, and a *printed* copy of the revised bill was despatched to all members of the T.V.M.A. along with the minutes of the general meeting of September 26th, 1908. At the following general meeting (December 19th, 1908) Messrs. Gray and Theiler were appointed to interview Generals Botha (Prime Minister) and Smuts (Colonial Secretary) " with a view of having the Ordinance introduced into the Legislature."[15] General Smuts, who previously had agreed[16] to sponsor the bill " provided it was concise and not too long," replied that it would be advisable to wait until Union took effect " and then to introduce an Ordinance for the whole of South Africa."[17] In view of the fact that it was proposed soon after Union to introduce a consolidating medical act, Dr. Theiler, having discussed the matter with the Colonial Secretary, suggested[17] the possibility of amalgamating the medical and veterinary bills on grounds of ease and economy. He further proposed that the views of the Cape and Natal veterinary societies be obtained. Not only did the honorary secretary (J. G. Bush), T.V.M.A., communicate with the Cape and Natal societies, as indicated above, but he also arranged a conference of delegates at Pretoria on May 18th, 1910 in order to discuss the matter of a veterinary bill for the Union.[18] While Natal was in full sympathy with the incorporation of the medical and veterinary ordinances, the Cape was definitely antagonistic. Both parties, however, failed to send a delegate to the conference, thus nullifying its deliberations.

At Union the policy of the T.V.M.A. is indicated by the following motion, proposed by Mr. Christy (and carried) at the general meeting of June 25th, 1910:[18] " That the Cape and Natal Societies be informed that this Association is resolved to proceed with the matter of introducing a Veterinary Ordinance: further, that we are prepared to guarantee a certain sum towards the cost, and we ask whether they are prepared to do the same. That, failing support, we are determined to proceed with the matter unaided, and that we suggest that in view of the forthcoming official meeting of Principal Veterinary Surgeons, each of these gentlemen should be authorised to represent his own veterinary society.[19]

At this meeting the Transvaal draft bill (apparently that of 1908) was accepted as the basis of the Union draft. The bill had already been printed and distributed, and the other associations had been asked to forward their views on it by September 26th, 1911.[20] (For this draft see Appendix iii, p. 181). At this time the sub-committee in charge of the bill consisted of Messrs. Theiler and Christy who, having secured the support of the Cape V.M.A., proposed (December 31st, 1910) that the Minister of the Interior (General J. S. Smuts) be approached with a view

to introduce the bill.[21] Whether this was done is not clear, but unfortunately it was an unsuitable time, for with the stream of consolidating bills, *e.g.*, stock diseases (Act 14/1911) following unification, there was no hope of a veterinary bill receiving attention. Again, among the State members of the profession, as a result of reorganisations and transfer, there was at this period very little enthusiasm, with the result that after Union neither the Cape nor Natal societies was active; in fact, but little seems to have been done prior to the outbreak of war in August, 1914, and naturally during the early stages of the struggle the matter was out of the question.

Renewed interest, however, in the veterinary bill was shown at the first general meeting (October 20th, 1917) held since August, 1914.[22] A resolution, which led to a meeting of veterinary delegates at Bloemfontein on the 10th and 11th December, was adopted, for it was felt that united action was imperative. Representatives accordingly assembled at the S.V.O.'s Office in the Free State Capital as follows:—

T.V.M.A., Messrs. P. Conacher (Chairman) and J. G. Bush.

C. of G.H.V.M.S., Mr. J. Spruell.

N.V.M.A., Mr. F. J. Carless.

Orange Free State, Mr. A. Grist.

With the exception of Mr. Carless all were members of the T.V.M.A., Mr. Spreull, in addition, being a member of the Cape Society. The draft bill " as last amended " (see Appendix iii, p. 181) was first discussed, but it was decided, after study of the " Medical, Dental and Pharmacy Bill," to discard it and in its place to introduce a measure on the lines of the new medical bill. This having been drawn up, Colonel Bush obtained the consent of the Natal and Orange Free State delegates with regard to the T.V.M.A. being authorised to proceed with the introduction of the bill. The Cape representative, however, preferred to await his Society's approval. In connection with finance, Colonel Bush proposed (and Mr. Spreull seconded) that the delegates should ascertain from their associations " what proportion of the total cost they were prepared to contribute " *i.e.*, towards the passage of the bill. Finally, a Financial Committee consisting of Messrs. Bush, Spreull and Crowhurst (Honorary Secretary and Treasurer of the C. of G.H.V.M.S.) was appointed.[23]

At a council meeting at the S.V.O's Office, Pretoria, on December 28th, 1917, the draft bill drawn up at Bloemfontein was adopted. Colonel Irvine-Smith at the same time suggested that the support of the Transvaal and South African Agricultural Unions be obtained prior to the Minister of Interior (Sir Thomas Watt), who was sponsoring the medical bill, being approached to interest himself on behalf of the veterinary profession. With the exception of a small amendment, proposed in the first instance by the T.A.U., both agricultural unions were in favour of the bill.[24] The Parliamentary Committee, consisting of Messrs. Conacher and Bush, then visited the Minister of Interior at Capetown on January 31st, 1918, but his reply was that the matter was one " to be dealt with by the Minister of Agriculture (Hon. H. C. van Heerden.)" This gentleman was thereupon interviewed, the result being " that he would try " to introduce it " next session," *i.e.*, early in 1919.[25]

As can be understood, enthusiasm among the members of the profession now ran high. The bill was published in the *Veterinary Record* of May 25th, 1918 and June 1st, 1918 (See Appendix iv, p. 181), and at the annual scientific gathering of the T.V.M.A. at Onderstepoort on August 12th and 13th, Mr. S. Amos received authority to collect funds in Natal for assisting the passage of the measure. He himself headed the list with £25, but the total amount collected has not been ascertained.[26] In the meantime the Council of the Royal College of Veterinary Surgeons had been requested to report on the bill. A committee duly dealt with the matter and its recommendations were adopted by the Council, R.C.V.S., on October 4th, 1919. On October 9th, 1918, a deputation consisting of Messrs. Irvine-Smith, Bush and Conacher, interviewed the Minister, who repeated his statement of January. As for the promise, nothing came of it. It is remarkable, however, that at a council meeting of the T.V.M.A. held at Pretoria on March 7th, 1919, *i.e.*, during the session in which the Minister had proposed to introduce the measure, the matter was not referred to; although at subsequent council meetings (September 1st, 1919 and October 11th, 1919), when it was too late, the Hon. Secretary was instructed to communicate with the Minister. At the annual general meeting held at Onderstepoort on July 28th and 29th, 1919, Mr. Conacher (President) stated that a deputation had been informed by the Minister of Agriculture prior to the last session[27] " that it might be possible for the bill to be put through as a Government measure, but that in any case in the immediate session (*i.e.*, September 5th, 1919—September 17th, 1919) the bill could not be dealt with." As there was some difference of opinion as to whether the measure should be introduced as a Government measure or a private measure (Colonel Bush, having obtained Mr. Rooth's assurance that he would undertake the task), a Parliamentary Committee consisting of Messrs. Montgomery, Gray, Bush, Irvine-Smith and Viljoen was appointed. This on October 9th, 1919, interviewed the Minister of Agriculture, who stated he hoped " to secure a safe passage for the bill through Parliament during the next Session " (*i.e.*, 1920).

At this time agitating the minds of the profession was the question regarding the institution of a local Faculty of Veterinary Science;[28] and it is significant that at the same meeting (July, 1919) the proposal was defeated by 16 votes to 4, the deciding factor being the absence of any legal protection for graduates of the Faculty. Indeed, at a council meeting on February 10th, 1920, at Pretoria, Professor Viljoen remarked during a discussion that " one of the conditions of the establishment of the new Faculty was that a veterinary bill providing protection for all veterinarians must be passed." Unfortunately, at the beginning of 1920, when the new Faculty came into existence, a change of ministry took place as a result of which a new Minister of Agriculture (Hon. F. S. Malan) was appointed.

The council meeting referred to above was the last held by the T.V.M.A., the subsequent gathering of council (March, 1920) consisting of the same members,[29] acting on behalf of the South African Veterinary Association. The only reference made to the bill at this meeting was that a new Parliamentary Committee should be appointed. This was accordingly done, the members being Messrs. Gray, Spreull, Conacher, Viljoen and Quinlan.

South African Veterinary Medical Association.

Coinciding with the inauguration of the S.A.V.A. early in 1920 was the establishment of the Faculty of Veterinary Science in the Transvaal University College, which is a constituent college of the University of South Africa.[31]

Reference has already been made to Professor Viljoen's remarks at the council meeting (T.V.M.A.) on February 10th, 1920, regarding the importance of legal protection in connection with the new Faculty. Sir Arnold Theiler, who was Dean of the Faculty, again stressed this in commenting on the bill (letter March 31st, 1920) to the Secretary for Agriculture. Sir Arnold, while not entirely approving of the draft of 1918, since due recognition of the function of the Faculty had not been acknowledged, nevertheless admitted the necessity of a legal measure, and wrote as follows: " The success of a South African Veterinary College is in a large measure contingent upon the passage of a Veterinary Surgeons' Act for the proper protection of members of the profession." And again: " It is assumed that any legislation framed for the protection of the veterinary profession will be in comformity with the recommendations of this Committee."[32]

The Minister of Agriculture (Hon. F. S. Malan) *now that the State was concerned in veterinary education,* had intended introducing the bill as a *Government* measure in 1920, but, no doubt as a result of Sir Arnold Theiler's observations, apparently decided not to proceed until the profession had come to some agreement on the matter.

As a result, however, of Sir Arnold Theiler's observations the bill was discussed at the general meeting S.A.V.M.A., held at Onderstepoort on September 9th, 1921, amendments were made, and the entire draft was then typed and issued to members. (See Appendix v, p. 181). In the following November the Minister (now Sir Thomas Smartt), stated he would endeavour to introduce the bill the next session; and in order to assist him a deputation from the S.A.V.M.A. consisting of Messrs. Irvine-Smith, G. de Kock, E. W. Hunt, S. Woollatt, Venter and J. Moor (the last two being M.L.A.'s) met at Capetown on March 8th, 1922. An interview was arranged and " ultimately the Minister gave instructions for the bill to be printed and circulated for introduction to the House." Apparently this was not done.

On Professor de Kock's return to Pretoria, he gave the members of the Faculty of Veterinary Science, on March 17th, 1922, a summary of his visit to Capetown. In consequence of this, the meeting agreed to request the Secretary for Agriculture to refer the bill to the Faculty before its introduction into Parliament. Here is an example of that unfortunate spirit so common in our professional history. The bill had been revised the previous year; members of Faculty, all but one of whom were members of the S.A.V.M.A., had participated in the discussion on September 9th, 1921, and Dr. du Toit had even expressed gratification at the unanimity displayed! In April the bill (see Appendix vi, p. 180) was accordingly referred to Faculty and on April 10th, 1922, a sub-committee, consisting of Professors Viljoen, de Kock, and Green, was appointed to draw up a memorandum for submission to Faculty.

After several discussions and much unnecessary delay the comments of Faculty, arranged as two annexures, were eventually despatched to the Secretary for Agriculture on May 23rd, 1922, by which time it was impossible for the Minister to introduce the bill, had circumstances otherwise been opportune.

It is significant that among the members of Faculty themselves there had been considerable diversity of opinion, especially regarding administration of the bill. The majority of members preferred the method outlined in the draft bill as presented by the S.A.V.M.A. (Annexure i), whereas a minority favoured more far-reaching amendments which would place a considerable part of the administration in the hands of the Minister (Annexure ii). It was, however, not until the end of 1924 that " the draft bill, amended in accordance with Annexure i . . . was submitted to the Law Advisers for revision." (See Appendix vii, p. 181). Certain amendments were again suggested and these were submitted to Onderstepoort early in January, 1925, for " consideration and further amendment of the draft bill where necessary." (Letter of January 8th, 1925, from Secretary for Agriculture).

In the meantime the S.A.V.M.A. had not been idle, for early in 1924 the Minister had again been requested to introduce the bill, but, as indicated above, the matter had been allowed to languish. Further, at the general meeting of April 19th, 1924, a Parliamentary Committee, consisting of the President and Honorary Secretary (Messrs. Irvine-Smith and Kirkpatrick), Director of Veterinary Education and Research (Sir Arnold Theiler) and Principal Veterinary Officer (Mr. J. D. Borthwick), was elected and, in addition, the following motion was adopted, " That pending the passing of the proposed Veterinary Surgeons' Act, the P.V.O. be requested to submit all appointments under the Public Health Act, referred to him for approval, to the Council of the S.A.V.M.A. for an expression of their views."[34] Five months later (September 25th, 1924), in the course of an address at a general meeting of the Association, the new Minister of Agriculture (General J. C. G. Kemp) " hoped to be able to introduce it." (*i.e.*, the bill), next session, as " he appreciated fully the necessity for such a measure." As has been explained, soon afterwards the draft bill was submitted to the Law Adviser, whose recommendations (received by the Director of Veterinary Education and Research early in January, 1925), were incorporated in the draft bill in September, 1925. By this time the Minister was not hopeful of being able to sponsor the bill during the following session, although six months previously, *i.e.*, at the April general meeting of the S.A.V.M.A., the President intimated that he had consulted the Minister who advised that the bill should be in readiness " so that, if there were a possibility towards the end of the session he, the Minister, would introduce it."

About this time, however, there developed what may be called the Lawrence case, which clearly indicated that legal protection for graduates of the local Faculty and reciprocity with other veterinary bodies was essential. Mr. D. A. Lawrence, a Rhodesian, who had obtained a bursary from the Southern Rhodesian Department of Education in order to study at the Faculty of Veterinary Science, Pretoria, on seeking employment in the Veterinary Division of his native country, was informed that the South African degree was not recognised. This naturally led to negotiations between the Union and

Southern Rhodesian governments, as a result of which the ban was removed and the aspirations of our profession more widely appreciated, especially by those in authority. Early in 1926 the Government arranged to have the bill (see Appendix viii, p. 181) translated into Afrikaans[35] and printed, but sad to relate, its introduction into Parliament was left to a private member, Advocate van Hees, who succeeded only in getting it through the first reading, when it was withdrawn.

The bill was again discussed at the April, 1926, General Meeting of the Association, a Parliamentary Committee was elected and authority was given for the despatch of a deputation to Cape Town whenever necessary. At the second annual meeting, six months later, the Minister of Agriculture, in referring to the need for legislation, added that " the profession could rely on him giving it his full support." During the discussion, the Vice-President (Dr. de Kock) stated that Mr. van Hees had again promised to introduce the bill next session, but as there were certain clauses which appeared undesirable to Members of Parliament, he thought they should be considered by the Parliamentary Committee which was re-elected.

Early in 1927 the President (Dr. P. J. du Toit), on his return from Europe, interviewed Mr. van Hees, who stated that his intention that session was to wait until the medical bill had passed the third reading, and then to explain that the veterinary draft was based on it. In this way he hoped to have clauses identical or almost identical in the two measures passed with little or no opposition. The medical bill, however, did not pass as anticipated and it is presumed the veterinary bill was withdrawn for this reason, although it was reported that the Dutch translation had been faulty. Enquiries were addressed to Mr. van Hees regarding the bill but, for some unknown reason, no reply was obtained. Dr. de Kock thereupon (March) visited Cape Town and through Advocate te Water, ascertained that the bill had been returned to the Law Adviser for revision. It is here that the Council, S.A.V.M.A., appears to have erred, for apparently no definite steps were taken to make certain that the bill was ready for the ensuing session of 1928. It would seem that full confidence had been placed in the sponsor.

In 1928 Advocate van Hees' long-awaited opportunity arrived, for the Minister of Public Health (Dr. D. F. Malan) succeeded in piloting the Medical, Dental and Pharmacy Bill (now Act 13/1928) through the Legislature. Nothing, however, was heard of the veterinary bill, in spite of reply-paid telegrams. A reason given for this omission was the limited time allotted to private members, but Mr. van Hees expressed his willingness to meet a committee of members of the profession in order to " make preliminary arrangements before next session ! " The real reason apparently, was that the bill was not ready. Dr. de Kock had in the meantime retrieved it and, remarkable to relate, although passed by the Law Adviser in 1924, it had been found necessary to make hundreds of alterations in the English version, which had been assumed to be correct !

In view of Advocate van Hees' offer, Dr. de Kock and Mr. Goodall of the Parliamentary Committee were appointed to meet him, and these gentlemen later decided that the worthy advocate's kind offer should not be accepted. At the general meeting of July 24th, 1928, the President intimated that he intended that the Parliamentary Committee should interview the Minister of Agriculture regarding a substitute for Mr. van Hees, but it is not known whether this was carried out. Apparently it was decided, with the parliamentary elections taking place in 1929, that there was less hope than ever of the bill being introduced " the next session ! "

After the elections, however, the President interviewed the Minister of Agriculture and at the August, 1929, general meeting informed the members that " he (*i.e.*, the Minister) is more convinced than ever of the necessity of having legislation in South Africa to protect the profession." As it appears reasonable to suppose that the length of the bill militated against its acceptance to Parliament, even were it introduced[36], the following motion was discussed at the meeting just referred to, " That Act 21/1899 (Natal) be applied throughout the Union of South Africa and South-West Africa." It was evidently decided that the suggestion to apply the Natal Act to the Union be referred back to the Parliamentary Committee[37] with the instruction to consider the advisability of introducing it as such or with simple amendments. The Parliamentary Committee, however, had not met by April 17th, 1930, when the autumn general meeting of the S.A.V.M.A. was held at Johannesburg. By this time, the writer had drafted a bill extending the application of Act 21/1899 (Natal) throughout the Union and the mandated territory of South-West Africa. See Appendix ix, page 181. This was distributed at the meeting where " it was resolved that an *ad hoc* Committee consisting of Dr. Viljoen, Dr. Curson and Dr. du Toit be appointed to arrange for the introduction into Parliament of a Veterinary Bill." A month later (May 23rd, 1930) a council meeting was held and at this Messrs. Viljoen, Kirkpatrick and Curson were appointed members of the Parliamentary Committee.

The Law Adviser having turned down the above amending bill, the new Parliamentary Committee having agreed to accept the principle that any veterinary measure should be administered *by the Government,* and the Minister of Agriculture having consented to introduce next year a bill providing for registration, the Parliamentary Committee is at present (September) engaged with the Law Adviser in drawing up a suitable measure.

Retrospection and Introspection.

In reviewing the events connected with the 28-year struggle for legal recognition, the following facts stand out clearly :—

(*a*) Lack of enthusiasm on the part of the profession, not only in failing to insist that those elected should fulfil their duties, but also in omitting to carry out propaganda work.

(*b*) Lack of energy on the part of Parliamentary Committees which in many instances have never functioned. As in most things, there are notable exceptions.

(*c*) Absence of initiative, suggestive of timidity, on the part of senior members of the profession.

(*d*) Much could be said about the neglect of duty on the party of politicians[38], but it is mainly secondary to the several shortcomings of the profession itself.

It is here that Henley's lines remind us how we should act. Every member should make the veterinary bill a personal matter, although it will be chiefly the private practitioner who benefits[39]. No one should consent to

serve on a committee unless prepared to do his duty. Everyone should interest his Member of Parliament, especially if a Cabinet Minister, in the measure. Finally, there should be no thought of discouragement. We are, indeed, a small profession and have, it is true, no political value, but we have done much for South Africa. In fact, apart from the mining engineer, no one has done more to shape the destiny of this country than the veterinarian.

References.

In writing this paper information has been from many sources, the details of which have been indicated in most cases. It had been hoped that the files of the various veterinary societies would have provided sufficient, but they have been sadly neglected. The Cape papers are in the possession of J. W. Crowhurst, Esq., F.R.C.V.S., who has been exceedingly kind in furnishing details. The Transvaal files were apparently lost in 1916 when Mr. J. M. Christy[40], Senior Veterinary Officer, Transvaal, fell ill and his private belongings removed by his lawyer from his office in Erasmus Buildings, Church Square, Pretoria. Of the S.A.V.M.A. minutes it is believed that only two complete sets exist, that of the Honorary Secretary-Treasurer and that of the writer[41].

Additional details have been obtained, through the kindness of the Acting Director of Veterinary Services (Dr. P. R. Viljoen), from the Department of Agriculture (Union Buildings) File V. 300, and the Director of Veterinary Services (Onderstepoort) File 253/7 (two sections).

The various draft bills have been collected from several sources and listed as appendices, particulars regarding which appear below.

The following Appendices have been Bound and Placed in the Library of the Division of Veterinary Services, P.O. Onderstepoort, the Expense being borne by the S.A.V.M.A.—May, 31st, 1930.

Appendix I.

Cape of Good Hope Veterinary Surgeons Bill, 1907. Several of the most important clauses are published in the *Veterinary Record* of January 12th, 1907, page 433.[42]

Appendix II.

Transvaal Veterinary Surgeons Bill, 1904. This is published in detail in the *Veterinary Record* of March 12th, 1904, page 578. Minor alterations were subsequently made, but in 1908 " a small ordinance on the lines of that of " Natal was drafted, printed and distributed to members of T.V.M.A.

Appendix III.

Union of South Africa Veterinary Surgeons Bill, 1910, which was based presumably on that of 1908 referred to under Appendix II.

Appendix IV.

Based on the Medical, Dental and Pharmacy Bill (now Act 13/1928). It was published in the *Veterinary Record* of May 25th, 1918 and June 1st, 1918.

Appendix V.

This is Appendix IV revised in 1921 chiefly as a result of Sir Arnold Theiler's objections to the former. Further amendments were later made, for which see—

Appendix VI.

which represents the state of the bill before commented upon by the Faculty of Veterinary Science in May, 1922. To this are attached Annexures 1 and 2 submitted by Faculty.

Appendix VII.

Being the bill revised between May, 1922, and September, 1925, and therefore not incorporating the recommendations of the Law Adviser.

Appendix VIII.

Which represents the final printed views of the profession. Not only is the Dutch version faulty, but the Law Adviser has since markedly changed the English version.

Appendix IX.

Drawn up by Dr. H. H. Curson, April, 1930.

References.

[1]The veterinarians in the Orange River Colony, being relatively few in number, joined the Transvaal Veterinary Medical Association. After 31 years Northern Rhodesia is the second territory in the Sub-Continent to make provision for registration of veterinarians. (*Veterinary Record*, July 27th, 1930).

[2]*Veterinary Record*, April 4th, 1907, p. 685.

[3]The death of Dr. Hutcheon (Director of Agriculture) on May 14th, 1907, was a great loss to the profession at this critical period.

[4]He was succeeded by Hon. C. P. Crewe in June, 1907.

[5]*Veterinary Record*, May 2nd, 1908, p. 779.

[6]*Veterinary Record*, October 2nd, 1909, p. 216.

[7]*Veterinary Record*, July 2nd, 1910, p. 9. Mr. C. E. Gray of the T.V.M.A., while in Capetown in March, 1911, met the Council members of the Cape Society and explained certain points of the Union draft bill.

[8]Letter dated August 9th, 1918, from Hon. Sec.-Treasurer C. of G.H.V.M.S. (J. W. Crowhurst) to Hon. Sec., T.V.M.A. (D. Kehoe).

[9]There is probably a copy in the files of the R.C.V.S., London.

[10]*Veterinary Record*, February 9th, 1907, p. 491.

[11]*Veterinary Record*, March 12th, 1904, p. 577.

[13]*Veterinary Record*, January 11th, 1908, p. 489.

[14]*Veterinary Record*, October 10th, 1908, p. 224. History repeats itself, for at the general meeting of the S.A.V.M.A. in August, 1929, similar views were expressed with regard to a Union Veterinary Bill.

[15]*Veterinary Record*, January 30th, 1909, p. 509.

[16]*Veterinary Record*, December 26th, 1908, p. 415.

[17]*Veterinary Record*, July 23rd, 1910, p. 59.

[18]*Veterinary Record*, October 24th, 1910, p. 184.

[19]The conference of P.V.S. was held at Pretoria in August, 1910, to submit recommendations for reorganisation of Veterinary Services for the Union. It is significant that they urged the creation of a Veterinary College at Onderstepoort and affiliation with the T.U.C.

[20]*Veterinary Record*, January 28th, 1911, p. 480.

[21]*Veterinary Record*, April 15th, 1911, p. 673. It is difficult to understand why the Minister of Interior should have been mentioned, for veterinary matters have usually been considered to fall under the Minister of Agriculture. As a matter of fact, by Government Notice 907 (U.G.G., November 11th, 1910, the licensing of veterinary surgeons in Natal under Act 21/1899 had been transferred from the Colonial Secretary to the Minister of Agriculture.

[22]At the same meeting a resolution was adopted instructing Council " to keep closely in touch with all draft legislation which may affect the veterinary profession."

[23]At a meeting of the Cape Society (January 9th, 1918), " It was decided to allocate the sum of £150 to assist the T.V.M.A. in endeavouring to promote the passage through Parliament of a veterinary surgeons bill." (Letter January 9th, 1918, from Hon. Sec.-Treasurer to J. Spreull). The money was received by Mr. Kehoe, Hon. Secretary, T.V.M.A., on September 10th, 1918. At the meeting of January 9th, 1918, Messrs. Fern, Forrest, Lyons and the Hon. Sec.-Treasurer were present. Whether the N.V.M.A. contributed at this time is not known, but early in 1924 certain funds, approximately £12, were transferred to the S.A.V.M.A. (See minutes April 19th, 1924). As it has been stated that all monies of the N.V.M.A. were paid to the S.A.V.M.A., it is worth noting that in 1929 £17 10s 4d.

was contributed by old members of N.V.M.A. to Royal Veterinary College Building Fund. (*Veterinary Record*, October 5th, 1929).

[24]It was accepted on January 16th, 1918, by the S.A.A.U. at a Congress at Capetown. In July, 1919, the S.A.A.U. requested the Minister of Agriculture to proceed with the bill. This he promised to do in 1920. Colonel Irvine-Smith has done much good work for both these bodies.

[25]Recorded in minutes of general meeting T.V.M.A., Pretoria, January 1st, 1918.

[26]It was at this meeting that the Hon. Secretary, Mr. Kehoe, suggested that the time was ripe for a South African V.M.A. Mr. D. T. Mitchell succeeded Mr. Kehoe (who returned to Ireland at the end of September, 1918) and brought the matter to fruition.

[27]Mr. Conacher was referring to the deputation of October 10th, 1918. The "last" session occupied the period January 17th, 1919—June 20th, 1919.

[28]A Government Commission consisting of Messrs. Hofmeyer, Theiler, Gray, Viljoen, Montgomery, and Fantham, presented majority and minority reports in connection therewith in 1919.

[29]In terms of a resolution passed at the meeting of September 1st, 1919, "existing officers of the T.V.M.A. became for the time being officers of the S.A.V.A." The first general meeting of S.A.V.A. was held on April 1st, 1920, in Johannesburg.

[30]Title changed to S.A.V. *Medical* A. at a general meeting, April 11th, 1922.

[31]From October, 1930, the T.U.C. will exist as an independent university, that of Pretoria.

[32]See reference.[28]

[33]Reference to the S.A.V.M.A. (in the draft bill of 1921) was deleted in both Annexures I & II, since that body was not registered under any Act, and was "merely a private professional association." The T.V.M.A. was registered under Order 56/1903 (which dealt with the incorporation of societies) and still remains, since the Registrar has not been notified that the T.V.M.A. has ceased to exist.

[34]This step was taken because the P.V.O., although empowered to grant or refuse approval of veterinarians under Act 36/1919, had authorised an unqualified man to perform veterinary duties in an abattoir.

[35]The cost of printing 800 copies was £58 12s. 9d. The translation was done by officials of the Department of Agriculture, whereas such work is generally undertaken by the Department of Justice. It is understood that the bill was withdrawn on account of the Dutch version being incorrectly translated. Mr. G. Pfaff (Hon. Sec.-Treasurer, S.A.V.M.A.), informs me that from 1918-20 the T.V.M.A. spent £43 10s. 11d. on the bill, and from 1920-30 the S.A.V.M.A. £62 5s. 10d.

[36]It seems extraordinary, but it is nevertheless true that the Clerk of the House of Assembly has no copy of the bill.

[37]Messrs. P. J. du Toit (Chairman), Spreull, Goodall, Kirkpatrick, P. R. Viljoen and le Roux.

[38]The change in the parliamentary outlook towards the profession during the past 30 years has been striking. Whereas formerly the M.P. in his wisdom urged the curtailment of veterinary services (see *Veterinary Record*, December 31st, 1898, p. 392 (Cape); *Veterinary Record*, August 19th, 1899, p. 105 (Natal); Report of Commission of Volksraad—Resolution 551 of June 29th, 1896—O.F.S.) to-day his son is receiving a veterinary training locally with the aid of a State bursary.

[39]The State and various municipalities employ only qualified veterinarians, hence apart from the principle, legal protection would benefit mainly private practitioners.

[40]On the Hon. Secretary, T.V.M.A. (G. W. Lee) proceeding on active service to German South-West Africa in 1914, he handed over all papers to Mr. Christy.

[41]Obviously anything of veterinary interest, *e.g.*, minutes of meetings, should be published in a well-established journal such as the *Veterinary Record*.

[42]The Bill was sent to R.C.V.S., London, under cover of a letter dated October 17th, 1906, and discussed at the quarterly meeting following (January 4th, 1907).

Eleventh International Veterinary Congress, London

August, 1930.

(*Continued from page* 154.)

Foot-and-Mouth Disease.

By W. H. Andrews, D.Sc., M.R.C.V.S.
Director of the Veterinary Laboratory of the Ministry of Agriculture and Fisheries, Weybridge.

This paper is not a general review of the present position of the investigations into foot-and-mouth disease; it deals with two aspects—plurality of virus and immunisation.

Plurality of Virus.

For many years it was known that while in most cases a solid and lasting immunity was conferred by a natural attack of foot-and-mouth disease, instances occurred in which re-infection occurred shortly after recovery. It was Vallée and Carré who first demonstrated two types of virus—A and O. This was confirmed in England by Bedson, Maitland and Burbury, working with guinea-pigs, and by Stockman and Minett, working with cattle, sheep and pigs. In Germany, Waldmann and Trautwein went further and demonstrated the existence of three types—two of which are identical with the above A and O; the third type has been named C. Type C has not been found in England. The three types differ immunologically only: clinically, infection with any type cannot be differentiated; although Schéin claims to be able to detect differences in symptoms and lesions produced by the types A and O, his observations have never been confirmed. Different strains of the same type may affect animals to different degrees, but this applies to all types.

Although three distinct types have been demonstrated, there is some evidence that atypical strains of these types are found. In cross-immunity tests they show some overlapping of immunity. There also appear to be further distinct immunological types not yet worked out. Two such strains have been found in England. In England the prevalent type is O—in all, 40 strains have been examined and 90 per cent. have been proved to be the O type.

Immunisation.

The greatest need to-day is an efficient method of active immunisation. The plurality of virus makes this difficult, although it has been found possible to immunise simultaneously against more than one type. In England, type O predominates and it may appear feasible to immunise against it, but it was shown by Trautwein that the prevalent type of virus in a district may change completely in a short space of time.

Immunity to foot-and-mouth disease virus is of two types—humoral or general and tissue or local. An attack of the disease renders an animal immune to both types and it appears that the tissue or local immunity is lost before the humoral variety.

The test for humoral immunity is the inoculation of virus intramuscularly and for tissue immunity, the intradermal inoculation of virus (on the upper surface of the tongue).

Waldmann and Trautwein have shown that local or tissue immunity disappears in an immune animal in about seven months and at Pirbright similar experiences have been recorded. Thus, six animals tested 3-4 weeks after recovery from infection and one tested in 6½ months all proved non-susceptible to intradermal inoculation, while animals tested later showed reactions.

Humoral immunity apparently lasts much longer—thus at Pirbright animals were proved immune by intramuscular injection of virus 32 months after their first reaction. The period is placed by some at two years. Intramuscular inoculation of virus has been shown to be a successful method of infecting normal cattle—in over 100 cattle only two proved insusceptible—and thus is reliable in testing for the presence of humoral immunity.

Cattle possessing humoral immunity have been exposed to natural infection by contact at Pirbright up to 16 months after their primary infection and have failed to develop the disease. Thus, although cattle may have lost their local or tissue immunity but still possess humoral immunity, they are probably resistant to natural infection.

Vallée and Carré suggested from some experiments carried out by them that the effect of re-infecting animals repeatedly was to destroy immunity and even to sensitise them. These observations are not confirmed in this country —it would appear that re-infection rather increases immunity in that it may restore a lost local or tissue immunity.

It appears that in the artificial production of immunity, the actual setting up of vesicles is not necessary for the establishing of a high degree of immunity and therefore as long as vesicles are not produced, the risks of spreading infection while carrying out artificial immunisation are considerably lessened.

The use of serum in the production of a passive immunity and its use in the creation of a zone of passively immunised animals may be of value in some countries.

T. D.

Foot-and-Mouth Disease (Plurality of Virus, Immunisation, Disinfection).

By Professor J. Lignieres.

Ex-Directeur, Fondateur de l'Institut National de Bacteriologie du Ministère de l'Agriculture, Professor à l'Université, Membre de l'Académie de Médecine et Président de l'Académie d'Agronomie et Vétérinaire de Buenos Ayres.

The existence of at least three types of virus has been confirmed by research workers in France, England, Germany, U.S.A. and Sweden. The three types have been named O, A, and C (Vallée) or A, B, and C (Waldmann). All three produce the same disease, but one will not immunise against another. The author has studied 33 strains obtained from cattle in the Argentine and Uruguay. The great majority were found to be type C, the remaining strains type O. The type C strains were not very infective for guinea-pigs until several passages had been made. There was no regularity in the geographical distribution of the two types.

Animals (cattle, sheep, pigs, guinea-pigs) which had recovered from the disease produced by inoculation of type C were found to be immune to a second inoculation of type C, but not to type O. Animals recovered from inoculation of type O were found to be immune to a second inoculation of type O, but not to type C. A few animals with natural resistance to both types were encountered.

Type C antiserum was found to protect guinea-pigs against Type C virus, but not against Type O. Type O antiserum was found to protect against Type O virus but not against Type C. A mixture of the two antisera and the serum of an animal recovered from inoculation of both viruses, protected against both viruses.

The virus is killed by exposure to sunlight, heat and acid media; the acidity of the muscles after the onset of *rigor mortis* destroys the virus. The virus may survive on soil, in buildings, on straw, hay, bran, animal hair, clothes, boots, etc. Carbolic acid, mercuric perchloride, creolin, all of which are bactericidal, are less effective against foot-and-mouth virus. Glycerin preserves it. Formaldehyde and copper sulphate are much more active and sodium hydrate still more active. One per cent. solutions are effective for disinfection of animal without injury to health.

Although dessication kills the virus in some cases, yet in other cases it may help to preserve it. It may thus be kept alive in buildings and on pastures and thus be responsible for fresh outbreaks. Evidence in support of this has been brought forward by Sir R. Jackson, Chief Veterinary Officer of the Ministry of Agriculture, Great Britain. It is therefore unjustifiable to attribute the origin of outbreaks of foot-and-mouth disease in Great Britain to contaminated meat from the Argentine.

Immunisation.

It has been known for a long time that animals which have recovered from one attack of foot-and-mouth disease may become reinfected. The plurality of the virus explains much but not all of this phenomenon of recurrence. Other factors appear to be responsible. The author is of opinion that animals which have recovered from an attack become sensitive again by repeated exposure to infection. In the course of hyperimmunization of animals he had noticed that some suddenly become sensitive again. The injection of a heterogenous vaccine, *e.g.*, anthrax, or pasteurella vaccine, appears to restore the normal resistance.

The inoculation of polyvalent hyperimmune serum confers an immunity which lasts 10 to 15 days and should be done if animals are in danger of infection at markets, fairs or shows; injection of 300 c.c. into adult in-contact animals also prevents spread of infection; it also protects calves and young pigs and prevents complications in valuable animals. In Germany, the method of injecting virus and serum simultaneously has given excellent results. It is better to use tested polyvalent serum which has been prepared in a laboratory than to use serum from recovered animals, as the immunising value of the latter is not known.

Vallée's method of immunising by inoculating formalin-killed virus gives good results sometimes, but is not always satisfactory. The author has devised a method of vaccination which he would like to be tested by an International Commission. He reserves the details of its preparation at present, but says that it is as easy to practice as

anti-anthrax immunisation; the vaccine contains living virus; all three types of virus may be used. Two injections are made at eight to 10 days intervals. Ten days after the second injection, the animals can be tested for immunity. The vaccine remains potent for 48 hours.

C. M'G.

Foot-and-Mouth Disease.

Professor Otto Waldmann.
Direktor der Staatlichen Forschungsanstalten, Insel Riems bei Griefswald, Germany.

Foot-and-mouth disease takes a very important place in the veterinary schemes of all countries, and Germany has played an important part in past research into it, as witness the work of Loeffler, Frosch, and Uhlenhuth, who reported on the disease to previous international congresses.

Demonstration of the filterability of the virus was of the utmost importance not only in this disease, but also in aiding research into other diseases caused by filter passers. Loeffler and his co-workers and also the German veterinary surgeon Hecker made a study of immunising animals against the disease. Before the war large animals, cattle and pigs, were used exclusively in research, with correspondingly great expense, but research has been assisted since the war by the discovery that guinea-pigs were well suited for experiments and, as a result, several important discoveries have been made about the biology of the causal agent, course of infection and immunity relations.

This paper is only to discuss single points of the problem, but in order to clarify my latter remarks, it is necessary to sketch out our latest knowledge about the nature of the causative agent.

Formerly, attempts were made to render the organism visible through a microscope and to observe its form by photographic methods with the help of ultra-violet rays, but without success; but now the method of ultra-filtration through a colloidal membrane (Bechhold-König method) has been successful in assessing the size of it: we found it to come between that of a hæmoglobin particle and a lackmus or egg-albumin particle; it is therefore about 2-3μ in size. American workers give the figure of 3·6μ.

Some research workers have expressed doubts that ultra-visible viruses are living organisms, postulating the theory that they may be ferments with a specific action on certain protein substances, but I do not agree with this idea. At the same time, however, I think that work should continue along this line of thought for comparative purposes. Another problem concerning viruses is that of cultivating it outside the animal body. This was not successful when culture media suitable for bacteria were used, but the use of tissue culture has been successful and many workers have tried this method with various viruses. My co-worker Hecke has been successful in growing foot-and-mouth virus upon embryonic rabbit skin, and it was obtained virulent after 12 passages extending over 46 days at body temperature (another time 10 passages over 40 days). Multiplication was tested by titration and in the extreme case showed an increase of several millions (6·8 times 10^{20}). This demonstrated the absolute tissue affinity of foot-and-mouth virus, and the rule " no multiplication in the culture without living tissue " is as yet binding for this virus.

Plurality of Virus.

We owe the first discovery of this fact to Vallée and Carré and now know that a number of strains exist, which differ not in pathogenicity but in their immunising relations. Virus of one strain does not immunise against the others. This is the only method of differentiation of the various strains and it probably finds a parallel with the virus of vesicular stomatitis of the horse in this respect.

As regards other points of differentiation, Vallée and Carré observed a smaller degree of resistance to freezing in the A strain than that possessed by the O strain and a longer immunity period with the O strain. Dr. Sichert-Modrow found that the O virus would pass an eight per cent ultra-filter under strong pressure, whilst the A and C strains were held back by even a 2·8 per cent. filter membrane. Ciuca used complement fixation tests for differentiation with positive results, but we could not convince ourselves as to the absolute efficiency of this method.

The method of choice is, up to now, that of immunising and re-infection, and it is possible to infect a susceptible animal within short intervals with each of the three known viruses, one after the other, and to cause the disease to occur clinically every time, and it is to this fact that the difficulties of dealing with outbreaks of the disease are due.

We found the third strain C in 1926 in Italy, Jugo-Slavia, Germany and Switzerland, and since then have examined 172 strains altogether, including many that differ from the three known strains.

Results of our work are as follows:—We found in Germany ninety-one O strains, nine A strains and nine C strains; in Italy, ten O strains, five C strains; in England, two O strains; in France, ten O strains, one A strain; in Switzerland, eight O strains, three C strains; in Jugo-Slavia, one each of A and O strains; in Serbia, two O strains; in Russia, four O strains; in Roumania, three O strains; in Hungary, two O strains; in Sweden, two O and one C strains; in Denmark, two O strains; in Holland, two strains, and in Argentine, five O and three C strains.

In Germany in 1926 there were 187,000 infected farms, and we found all three strains with their variants; in 1927, there were 15,000 infected farms, but the O strain alone was found, as was also the case in 1928 with 23,000 infected farms and in 1929 with 4,000 infected farms. We conclude from these data that a characteristic of severe outbreaks is the presence of several strains. Whether the converse is equally true remains to be determined in the future. Another finding of importance was that in 1927 and 1928 there was an epizootic of foot-and-mouth disease in pigs, which we found to be due to a strain of the O virus, which easily infected pigs and guinea-pigs, but only with difficulty cattle. The Argentine strains have been interesting in that during attempts at differentiation, only two of four strains which were highly virulent for animals spontaneously susceptible were passable to guinea-pigs, so that we were compelled to use other susceptible animals with the other two strains. We found that two were O type and two C type virus.

All research workers have put the question as to whether strains with the above properties break out afresh and again disappear in a definite time period such as during an epizootic. This is possible, but the transformation of one type into another has never occurred during experiments, although Manninger has declared that this can and does occur easily. No one else has observed that. Re-infection with any one strain succeeds in the large majority of cases, in 100 per cent. cases in guinea-pigs and 85 per cent. with cattle used for serum production. We are, however, of the opinion that a transformation of types is possible and even probable, and this is supported by the fact that an animal immunised against the O virus possesses homologous, and to a certain extent heterologous, antibodies. In addition, the occurrence of related variants supports the theory. This question will and must form the chief part of our future researches.

Disinfection.

Researches of the last ten years have shown us how great a danger an infected animal or stall is for the dissemination of the disease. We know now that the virus is excreted very soon after infection, within the first four days actually, and that primary mouth lesions occasionally occur within 24 hours after natural infection, and that from them the virus may be dropped and, when the blood later becomes the carrier of the virus on the infection becoming generalised, then the secretions and excretions also contain it. The development of the secondary aphthæ gives rise to still further spread of the virus and the pieces of shed mucosa contain virulent virus which has great resistance to destructive influences. In our experiments on guinea-pigs and cloven-footed animals we found that milk, urine and fæces were variably virulent from the twelfth to the 105th hour after artificial infection, always in the first five days and about 40 hours before the development of the clinical appearance of generalised exanthema. Excretion of virus with the saliva begins at the same time, but lasts to the eleventh day.

About the tenacity of virus outside the body much work has been done in many countries and we now know that it depends on the substrate in which it was excreted and on the medium in which it occurred after excretion.

Heat destroys the virus rather easily when it is present in vesicle or aphtha membrane. Temperatures over 30 are injurious, those above 50 lethal, those below 10 conserve it. Repeated freezing and thawing does not damage it. Lymph is very susceptible to decomposition and the aphtha tissue less so. The effect of sunlight is very viruscidal, due to ultra-violet rays. The virus is not adversely affected by dessication and we have seen that vesicle fluid dried in dust and kept in a dry atmosphere remains virulent for about 11 days. Burberry states the virus dried on cattle hair, hay and clay can remain virulent for several weeks (four, 15 and 20 weeks respectively). Here I will mention an observation of less practical than biological interest: lymph dessicated *in vacuo* and immediately heated withstands very high temperatures. With one sample we obtained positive infection with virus which had been subjected to a temperature of 105° for seven minutes and in another case 116° for eight minutes.

In shed epithelium the virus is very tenacious. It can remain virulent in the open for 67 days (Trautwein), in water 41 days, in dry stable dust 43 days. It resists decomposition in epithelium in stagnant water for 39 days in summer, 49 days in autumn and 103 days in winter, according to Wagener's observations.

It can thus be appreciated that the destruction of the cause of foot-and-mouth disease is no easy matter under practical conditions.

Of physical disinfectants heat is the best, preferably combined with dampness such as steam or boiling water. Much lower temperatures than possessed by the above will suffice also and the usual temperature of a dung hill is enough to kill the virus. With regard to chemical disinfectants for use in cattle houses, market standings and railway waggons, one must be chosen that is at the same time efficient, harmless to man and beast and free from taint or odour which may influence milk and meat. It should also be free from objectionable staining properties, and, what is very important, must be very cheap. Much work has been done lately on disinfection and one point that has come to light is that not every bactericide is also viruscidal; this is the case particularly with lime, phenol, and cresol. Much difference of opinion exists between research workers, which is not surprising when the very varied conditions in which the virus finds itself are considered. Virus in vesicle fluid is easily destroyed, but not so the virus in separated animal tissue. Mixtures with dirt, dust, fæces, etc., make a great difference. Olitsky and Boes established the fact that the richer the substrate is in albumin, the more does the virus resist the action of the disinfectant. Minett considers formalin altogether the best, but we do not agree. One per cent. formalin is not suitable to use for spraying cattle owing to its irritant effect on the mucous membrane of the eye and respiratory system. Formerly we recommended sulphurous acid but, on account of a few obscure points about its action, and its high price, we now support the opinion of American workers and recommend caustic soda in a one per cent. solution for animal, and one-two per cent. for object, disinfection. It is extremely cheap, so that no methods of compulsion are needed to cause the farmer to use it.

Immunisation.

An efficient method is not yet known. Active immunisation has been tried by various techniques using virus from different sources and different parts of the body for application. Only individual successful cases have been obtained. Attempts have been made to attenuate the virus; Loeffler passed the virus through swine and Hecker through cattle, but in neither case did any weakening of the virus occur. Passages through guinea-pigs also failed for this purpose and methods suitable with pox virus did not succeed with foot-and-mouth virus. The cattle either became ill or did not acquire a strong enough resistance to natural infection. Loeffler, and later Starkowizy, Uhlenhuth and lately Belin tried to obtain attenuation of the virus by growing it in symbiosis with the pox virus. Loeffler, abandoned the work and there is not yet sufficient evidence with which to judge Belin's results.

Further, attempts have been made to weaken the virus by the addition of physical and chemical media such as heat, cold, pot. iodide, phenol, alum, etc., and here again regular good results have not occurred.

Mixtures of virus with immune blood or serum, tried by Loeffler and Hecker, have also met with no success.

During the last few years a number of research workers have tried to achieve the desired results by killing the virus carefully with the object of destroying its pathogenic power but not its antigenic properties; Maitland used incubation, Kitt desiccation and Vallée, Carré and Rinjard addition of formol. The method of the latter has created much interest and has been used by those authors in practice and the English foot-and-mouth disease commission found by experiments on guinea-pigs that a certain degree of resistance is conferred, so that intracutaneous inoculation is followed by local but not general symptoms. No data on this method with cattle have been published by the English commission, whilst it is considered applicable for the immunisation of cattle in France. The French workers prepare virus for the immunisation of cattle by killing a guinea-pig at the height of the infection, grinding up the entire body, with the exception of unsuitable organs, and adding the formol to the resultant mash. We have tested Valleé's methods on guinea-pigs as well as on cattle, and with neither animal was any protection afforded against natural infection (three out of 40 beasts only remained healthy and all guinea-pigs sickened). Helm got similar results with guinea-pigs. However, we believe in the possibility of active immunisation and have done a very great number of experiments in the last three years. We tried to prepare a suitable vaccine by carefully drying fluid containing virus and subjecting it to ultra-violet irradiation, to the action of chemicals and dyes. With each method we were successful in getting some good results in experiments on guinea-pigs; some resisted re-infection, some showed a delayed syndrome and some escaped a generalised illness, but so far we have failed to develop a practical method.

Passive immunisation with immune blood or serum is the only method that has proved useful in practice. We know that a severely infected animal forms considerable amounts of antibodies in its blood, and one is limited according to the number of such animals for the purpose of obtaining antiserum in sufficient quantity to protect those not yet infected.

Comparative experiments have shown, moreover, that the capability for antibody formation varies according to the severity of the illness and with the individual. The value of convalescent blood fluctuates also and the primitive methods of preparing the serum in practice are apt to be dangerous.

Roemmele has proved that piroplasmosis can be transmitted by convalescent blood, and how far this may occur with other diseases remains to be shown. These deficiencies cannot be avoided with centralised antiserum preparation, and with the addition of the problem of virus plurality it seems that serum should be made locally for each particular outbreak of the disease. The use of convalescent blood in the bad outbreaks of 1921 and 1922 was very helpful in infected premises and, according to Ernst, the mortality was lowered from 10-1·3 per cent.

Loeffler, after studying immunity relations, tried to raise the immunity acquired in the course of a natural infection by giving increasing doses of virulent material and to test the value of his hyperimmunity by serum test experiments. Pigs were used to supply virus.

We now follow Loeffler's principles fundamentally, with modifications to suit our more lately acquired knowledge of plurality of virus. The animals are infected with the three strains within six to eight weeks, with intervals of 14 days. About 85 per cent. of the animals become ill at the second and third infection; then increasing doses of porcine virus are administered.

The value of the serum is tested on guinea-pigs by the method of one of us. From 0·1-0·6 c.c. of serum are injected into lots of three guinea-pigs and a simultaneous cutaneous infection carried out. A primary lesion develops at the site of infection, but generalisation fails in protected animals. That amount, which prevents generalisation, is the titre of the serum. A titre of at least 0·4 with multiple valency is, with a few other necessary properties, the condition which governs the eligibility of issue of the serum. In practice the therapeutic value of highly immune serum is slight, owing to the fact that when the disease is recognised clinically generalisation is already present and serum is then too late to be of use.

The serum finds extensive use in simultaneous inoculation. Animals still healthy in an infected district are given 10 c.cs. serum for every 50 kgs. body-weight, and afterwards infected with material from fresh cases of the sick animals. A rapid passage through the disease, followed by a quick return to health, occurs. Best results occur with the malignant type of the disease. Inoculation of calves and pigs in the first weeks of life is necessary, as these young animals usually succumb to outbreaks of mild character.

Formerly the protective power of the serum was overestimated. Now, 20 c.cs. of serum per 50 kgs. body-weight should be given, and that will protect the animal for about ten days. Serum inoculation is only indicated in cases in which ungulate animals are exposed for a few days to the danger of infection, such as occurs in shows, markets and cattle trucks, etc. Cattle houses in an infected area offer an easy chance of infecting animals passing through, but thanks to adequate inoculations carried out on show cattle in a large number of exhibitions in Germany during the years 1926 and 1927, no case of dissemination of foot-and-mouth disease has been traced to such sources.

The ordinary veterinary police regulations are to be carried out as usual in the course of animal transport, and serum treatment does not replace them in any way. Millions of cattle have been inoculated in the last few years in Germany where this method has passed into universal use in cattle markets of Prussia. In outbreaks of the disease in any farm there is carried out, in addition to police regulations, artificial infection of all in-contact animals with simultaneous inoculation of 10 c.cs. serum per 50 kgs. body-weight to prevent severe illness. Then those animals in the same neighbourhood receive a protective inoculation. Careful disinfection is also practised in the infected premises. As we know that the virus is no longer excreted after eleven days after infection, we consider the danger to neighbouring premises to be over after that interval and allow relaxations in the control measures to follow forthwith.

Such " Ring " inoculations have given, on the whole, good results in Germany.

J. T. E.

Clinical and Case Reports.

A Double Infection of *B. caballi* and *Nutallia equi* (1929).

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.,
PROFESSOR OF BACTERIOLOGY, CAIRO VETERINARY COLLEGE.

CASE:

A brown mule, nine years old; appetite depraved; the mucous membrane of eyes and mouth was yellow in colour; temperature 39·8° C; condition fair.

Blood Examination:

A fairly heavy infection of *Babesia caballi*, one in every three or four fields.

Treatment.—Arrhenal (disodium ethyl arsenate) was inoculated subcutaneously in one gram doses daily for three days. Twenty-four hours after the third dose, blood films showed the same heavy infection of caballi as before the treatment; temperature 38° C. On the same day (fourth day of admission), 50 c.c. one per cent. trypan blue inoculated intravenously.

On the fifth day, temperature 40·1° C, blood films examination revealed a very heavy infection of *Nutallia equi*, hardly five cells per field escaped infection, and microscopically no *B. caballi* was seen.

On the sixth day, a second dose of trypan blue, 50 c.c. one per cent., was intravenously inoculated.

On the seventh day, blood film examination revealed the same heavy infection of Nutallia; the animal was found dead on the morning of the eighth day of admission.

Post-mortem.—Deep yellow coloration of all membranes; oblong hæmorrhages of small size were seen on the mucous membrane of the stomach, as well as small irregular dipping ulcers with overlapping edge and bleeding base. Smears prepared from the internal organs revealed a heavy infection of *Nutallia equi*.

This particular case indicates:—the efficiency of trypan blue in the treatment of *B. caballi*; that Trypan blue is not effective in *Nutallia equi*; Arrhenal reduces the temperature, but has no definite effect on either infection.

Trypan Blue and Bovine Babesia (1929).

By Z. Morcos, M.V.Sc., F.R.C.V.S., D.V.H.,
PROFESSOR OF BACTERIOLOGY, CAIRO VETERINARY COLLEGE.

Following the simultaneous inoculation against rinderpest, with locally produced immune serum obtained from Egyptian bulls and virulent blood obtained from Cyprus bulls, on the 12th day of inoculation some of inoculated cattle died.

Post-mortem was made on the spot on 12 animals a few hours after death. This revealed advanced jaundice, all tissues looked deep yellow, most marked on serous and mucous membranes; ulcers of small size, ½ to 6 mm., with slightly overlapping edge, and bleeding base, were met with on the mucous membrane of the abomasum, and small hæmorrhages on the serous and mucous membranes. Nephritis and cystitis; urine coloured red. Spleen was in seven cases normal and in five cases slightly enlarged, but of firm consistency.

Blood seeded on culture media with negative result. Guinea-pigs and rabbits were subcutaneously inoculated with blood of dead animals, with negative results.

Blood film examination and internal organs film examination, revealed in all the 12 dead cases a heavy double infection of morphologically-resembling (microscopic examination) both *Babesia bigemina* and *B. divergens*.

Blood films of many live animals with a rise of temperature revealed the same picture of piroplasmosis as in the dead animals examined.

Within 24 hours of *post-mortem* all the batch doubly inoculated (about 3,000) each received 50 c.c. one per cent. trypan blue intramuscularly; the dose was repeated after five days, after which no more deaths were reported.

All animals with a rise of temperature, a week after simultaneous inoculation received one gram of arrhenal as a precaution, and their blood examined regularly for Piroplasma.

Arrhenal proved useful in the treatment of the small ring or comma-like Theileria, so-called Egyptian fever.

Trypan blue was most effective in the treatment of the morphologically-resembling bigemina and divergens.

One most important point may be at once concluded, and that is, that, although an animal may be exhaustively examined for Piroplasma (microscopically) with negative result, its blood may prove infective on animal inoculation.

A Patent *Ductus Arteriosus* in an Aged Horse.*

By Tom Hare.

A patent *ductus arteriosus* in an adult animal appears to to be a very rare lesion, no record of it having been found in an extensive search of the literature.

The subject was a black cob, gelding, 15·2 hands, aged a little over 20 years. When purchased this winter from a repository, for dissection at the Royal Veterinary College, it was in lean condition and when exercised revealed the "double dyspnœa" characterising a "broken-winded" horse. The heart, fixed *in situ*, was larger than normal and weighed 4·5 kilos (normal about 4·0 kilos). Its greatest width across the ventricles was 21·2 cms. The walls of the pulmonary artery and root of aorta were united at the ductus arteriosus, through which their lumina communicated by an oval-shaped opening 1·8 by 0·5 cms. The diameter of the pulmonary artery at its bifurcation was 6·0 cms. (normal being 3·5 to 4·0 cms.) and that of the arch of the aorta, immediately distal to the ductus, was 5·3 cms. (normal 5·0 cms.). The right auricle and conus arteriosus were dilated and the right ventricle was hypertrophied, the thickness of the left and right ventricles being 5·0 cms. and 2·8 cms. respectively (as measured at the insertion of the chordæ tendinæ). There were several white opaque plaques of fibrous tissue in the epicardium of the right side of the left ventricle. The liver was enlarged and cirrhotic; otherwise, as my colleague Professor J. McCunn informs me, no other macroscopic abnormality was discovered throughout the dissection.

*Reprinted from the *Journal of Pathology and Bacteriology*, Vol. XXXIV., 1931, p. 124.

Reviews.

"The Veterinary Journal": Special Poultry Number, January, 1931.

We have pleasure in recommending the perusal of this number of *The Veterinary Journal* to all who are interested in poultry.

In two editorial articles some idea is given of the scope of the poultry industry in this country and reference is made to the importance of the industry to the veterinarian.

Statistics presented to the recent Poultry Conference by Mr. P. A. Francis, O.B.E., Poultry Commissioner to the Ministry of Agriculture, show that since 1913 egg production in this country has increased over 100 per cent., which represents an addition to the national income of over £7,000,000.

The latest available figures show that the approximate annual value of home produced eggs and poultry is some £24,000,000, a sum equal to the value of the grain crop, including wheat, oats, barley, etc., and considerably greater than the value of the potato, fruit and vegetable crops.

If the imports from abroad are taken into account, the total value of poultry, etc., consumed in this county is over £45,000,000. In this connection it may be mentioned that the average consumption of eggs in this country is less than that of several other countries.

Whilst our home production of eggs has practically doubled since 1913, foreign imports have not materially increased during that period; in fact, the import of eggs in shell in 1928 was less than in 1913.

The special poultry number opens with a paper (reported to the Fourth World's Poultry Congress) by Mr. R. E. Dale, C.B., Ministry of Agriculture, in which is explained the organisation of poultry education and research in England and Wales. This is followed by articles on:—

"Helminth Parasites of Poultry," by T. W. M. Cameron; "Iodine in the Control and Treatment of Avian Coccidiosis," by W. R. Kerr and G. H. Botham; "The Transmission of Pullorum Disease (Bacillary White Diarrhœa) Among Adult Stock," by G. H. Warrack and T. Dalling; "Some Significant Points Concerning the Parasitic Worms of Fowls and the Causation of Worm Diseases," by E. L. Taylor; "Some Experiments Concerning Fecundity," by R. C. Punnett; "Studies in the Epizootiology of Avian Tuberculosis," by D. C. Matheson; "Avian Diphtheritic Enteritis and Swine Fever," by J. P. Rice, and, "On Significant Modifications of Feather Type Induced by Injections of Female Sex Hormone (Œstrin) to Capons," by A. W. Greenwood and J. S. S. Blyth.

Articles of clinical interest are contributed by G. Mayall, H. G. Lamont and by W. J. Leyshon.

The number concludes with a review of the well-known work by B. F. Kaupp on "Poultry Diseases." Incidentally, it may be remarked that the value and popularity of this work are such that it has now reached its fifth edition.

"The Journal of the South African Veterinary Medical Association."

Volume 1, No. 4, for October, 1930 (Pretoria, The Goodtlope Printing Works), pp. 121, completes Volume 1 of this very worthy publication.

It is proposed in future to issue the *Journal* twice yearly. The annual subscription is 7s. 6d., and should be forwarded to the Honorary Secretary, South African Veterinary Medical Association, P.O. Box 593, Pretoria.

Among the articles are: "Sterility in Cattle," by J. Quinlan; "Vermaersiekte," by D. G. Steyn; "Babesiosis in a Sable Antelope," by G. Martinaglia; "Helminthiasis of Domestic Stock in the Union," by P. L. Le Roux; "The Value of the Midbrain in the Diagnosis of Rabies in Rabbits," by A. D. Thomas and C. Jackson; "Blacklung in Ruminants," by R. A. Alexander. Dr. H. H. Curson contributes an article on the struggle of the veterinary profession in South Africa for legal recognition, and, together with Messrs. Thomas and Neitz, on studies in native animal husbandry.

Abstracts.

[The Demonstration of the Tubercle Bacillus in Pulmonary Mucus Excretions, with respect to New Methods. Karsten and Frisch, *D.T.W.*, 1930, 38, 41, 645-48.]

The material is obtained either in the form of swabs or of the liquid mucus itself (*via* a tracheal cannula). One portion is set aside for guinea-pig inoculation if the ordinary microscopical examination proves negative; another portion is treated with five per cent. antiformin, incubated for 24 hours at 37° C., distilled water added to lower the specific gravity, and the whole centrifuged. A smear is made from the deposit and stained by Ziehl-Nielsen's method.

In 1929, 4,553 swabs and 1,729 mucus excretions were examined; of the swabs, 1,316 (28·90 per cent.) were microscopically positive, and of the excretions, 278 (16·07 per cent.); 1,343 of the 3,237 negative swabs were tested in guinea-pigs and 259 (19 per cent.) were positive; 571 of the 1,451 negative excretions were biologically tested, and 121 (21·19 per cent.) were positive.

An experiment showed that the guinea-pig (in microscopic negative cases) gave a higher percentage of positive results than did culture methods.

Further, the membrane filtration of antiformin-treated material and the examination of smears made from the deposit on the membrane gave less satisfactory results than the usual technique.

J. H. M.

[The Results of the Examination of Bronchial Mucus for the Tubercle Bacillus. Proscholdt, O., *D.T.W.*, 1930, 38, 40, 633-36.]

The article deals with an examination of the reports of various institutes on the demonstration of the tubercle bacillus in bovine bronchial mucus.

Equally good results are obtained, from a microscopical standpoint, whether the antiformin, glycerine or distilled water method of enrichment is employed. With a satisfactory method, positive microscopical results may be obtained when the material has origin in an animal which gives every indication of having pulmonary tuberculosis. When the sample is from a case of an only slightly suspicious nature, recourse should be had to the animal (guinea-pig) experiment.

The treatment of mucus with antiformin not only kills or harmfully affects accompanying organisms, but also

deleteriously affects the vitality of the tubercle bacillus itself, to such an extent that the guinea-pig does not become infected. Treatment with glycerine, on the other hand, allows of a great increase in the number of concomitant bacteria, and is thus an unsuitable procedure prior to the animal experiment.

J. H. M.

[**Experiments on the Cultivation and Differentiation of the Tubercle Bacillus.** Wolters, *D.T.W.*, 1930, 38, 40, 630-632.]

The author discusses the cultural isolation of the tubercle bacillus from pulmonary (bronchial) discharge and from milk. The results were certainly as good as those obtained by the microscopical examination, with or without prior antiformin enrichment. There was evidence that they could be superior, as shown when 18 microscopically negative and two doubtful excretions were inoculated on suitable media. Two of the negative and both the doubtful discharges were positive culturally. Similar results were obtained with milk.

To the excretions hydrochloric acid is added to make a 15 per cent. solution; they are then sown on Petragnani's egg medium and Besredka's broth, both containing malachite green. This dye is added as it inhibits the growth of accompanying bacteria. The fluid medium yields a quicker result than the solid, the tubercle bacillus being demonstrable, usually, in 2-4 weeks.

On the malachite green solid medium, cultural differences between the human, bovine and avian strains were noted. The human type grow firstly as small, dry, clear, raised colonies. Later, these increase in circumference and form a dry, crumbly layer. On further incubation the layer became of a clear yellow colour, as did the original green medium here and there. All the 87 human strains tested behaved as described.

The bovine type developed in the form of small delicate, clear yellow, damp, smooth colonies. Later, delicate matted outgrowths appeared, which eventually acquired a green colour. Of 43 strains examined 41 behaved in this manner; the remaining two were identified at a later date as of the avian type.

The avian strain produced in 10-20 days round knob-like, raised, clear yellow, damp colonies. Later, matted offshoots of a slimy nature appeared, these showing, here and there, round button-like elevations. Occasionally, in older cultures, a more or less marked yellow coloration was produced.

Non-pathogenic acid-fast bacteria produce culture results distinguishable from those of the tubercle bacillus. Growth is visible in a few days, this applying to the tubercle bacillus of cold-blooded animals.

J. H. M.

[**On the Decomposition of Fish and its Bacteriological Diagnosis.** Schönberg, Dr. F., *B.T.W.*, XXXXVI, No. 27, p. 429.]

This is a paper from the research laboratory of the State veterinary police food-control in Berlin.

In the introduction the author reviews the work carried out by other investigators and observes that the results obtained by them do not agree in so far as species of micro-organisms responsible for the decomposition of fish and their cultural characteristics are concerned. He emphasises that bacteria found on and in fish (fresh-water and sea-fish) must be cultivated both at room temperature (15°-20° C.) and in an incubator (at 37° C.); water-bacteria found in freshwater and sea-fish and belonging to the species of psychrophilous schizomycetes develop well only between 15°-20° C., the minimal and maximal favourable temperatures for growth being between 0° C. and 30° C.; they are quickly destroyed in an incubator at 37° C. This fact is of the utmost importance for the bacteriological investigation of raw fish. The following technique can be recommended for the bacteriological examination of decomposed fish:—

The surface of the fish showing macroscopically pathological changes is freed from scales and singed carefully in the gas-flame; small pieces of muscle are then cut out from the depth of the lateral muscles in the middle third of the fish and sown on two agar-plates, one of which is kept at 15°-20° C., and another is incubated at 37° C. for at least 24 hours. Further, one agar-shake and one grape-sugar-broth cultures are sown from muscle, liver or kidneys for the demonstration of anærobic germs and kept at 37° C. in an incubator and at room temperature respectively. In addition, numerous slides should be prepared from fish musculature and Gram-stained.

The author proceeds further to describe his findings and the various species of sea and fresh-water fish examined by him according to the above method. The results of his investigations are tabulated.

It was demonstrated in the course of bacteriological examination that fish in various stages of decomposition contained the greatest number of micro-organisms in the musculature. This disproves the widely-prevalent view held hitherto that bacterial content of fish being even in an advanced state of decomposition is rather small, as compared with that of the decomposing flesh of warm-blooded animals. According to the author's experience, even a fish in the initial stage of putrefaction teems with bacteria.

It is Gram-negative, energetically-motile, ærobic,, slender rods and other Gram-negative rods of different aspect that are causing the putrefaction of fish in the first instance. They belong to the group of water-bacteria and liquefy the gelatine very quickly.

Secondly, other kinds of bacteria came up for consideration as causal agents of putrefaction in fish: *Bact. coli*, Proteus group, micrococci, sarcinæ, Mesentericus group, and anærobic sporulating rods. Energetically motile water-bacteria soon over-run the fish, and then inhibit the multiplication (growth) of the above bacteria.

The author carried out a series of experiments with a view to producing putrefaction in fish experimentally by using gelatine-liquefying rods cultivated at room-temperature. He describes the technique of his investigation and tabulates the results obtained. These, controlled by other veterinarians employed by the same institute, leave no doubt that water-bacteria, mainly gelatine-liquefying, Gram-negative, slender, energetically-motile rods, are responsible for the decomposition of fish and formation of a peculiar "fishy" odour. Freshly-caught fish are practically germ-free. Fish musculature, *pari passu*, contains relatively a smaller number of germs than the decomposing flesh of warm-blooded food animals. Bacteria are present on gills and on the skin and immeditely autolysis sets in the

motile species gain access to all parts of the body and give rise to putrefaction. Therefore, filleting of sea-caught fish, as soon as possible after haul, can be advocated as a prophylactic measure preventing the penetration of gelatine-liquefying bacteria into the muscles. Low temperatures also inhibit the growth of noxious micro-organisms.

The author gives the following summary :—

1.—The bacterial content of the musculature of decomposing fish is always very large; it is considerable even in fish in the initial stage of decomposition.

2.—The bacterial flora can be easily demonstrated by using agar-plates as described above.

3.—Gram-negative, slender, very motile, gelatine-liquefying rods, growing best at room-temperature, belonging to the so-called water-bacteria, shall be regarded as causal agents of decomposition of fish in the first instance; Gram-positive micrococci, Proteus-group, coli-group, *Bacillus mesentericus*, and anærobic bacteria play a secondary rôle in causing decomposition of fish.

4.—The author succeeded in producing an experimental decomposition of fresh fish after inoculation with water-bacteria cultivated from putrefying fish musculature.

The article has a list of 14 references appended.

H. F.

[**The Etiology of Diarrhœa of the New-born Pig.** Marcis, A., *D.T.W.*, 1930, 38, 47, 744-6.]

Such bacteria as the colon and paratyphoid bacillus are able to produce intestinal disturbance only when the vitality of the young animal has been lowered by some other influence. The presence of calf diarrhœa and Bang's disease in the same herd of cattle has been well established, the supposition being that the calf's vitality is so lowered that such germs as *B. coli* are able to flourish easily.

The author investigated an outbreak of Bang's disease in a herd of swine. At first abortion resulted, but later, as the result of developed immunity, the sows carried their young until full term. However, the sucklings born under such conditions were of a weakly disposition, susceptible to the harmful influence of other microbes.

The author cites another outbreak of diarrhœa in suckling pigs in which the agglutination test demonstrated the presence of Bang's disease in the sows, and bacteriological examination of the sucklings' intestine demonstrated an enteritis produced by *B. coli*.

In outbreaks of diarrhœa, the possibility of infection with Bang's bacillus should always be considered; if negative, the method of feeding and the management of the sows should be investigated.

J. H. M.

[**The Important Intestinal Helminths of the Dog.** Sprehn, C., *D.T.W.*, 1930, 38, 39, 614-618.]

The commonest tapeworm of the dog is *Dypilidium caninum* (*T. cucumerina*). Ripe proglottides, found in the fæces or around the anus, are barrel- or pumpkin seed-like in shape and (in the living state) of a rosy-red colour. Their size varies, but they are generally 8 mm. × 4 mm. On each side of the cestode proglottis there is a shallow constriction connected with the genital opening. In the inside, the genital organs are atrophied, the eggs filling up the whole inside cavity.

The intermediate hosts are the dog and the human flea and the *Trichodectes canis*.

The second most important cestode, *Tænia pisiformis* (*T. serrata*) has more rectangular, thicker, whitish proglottides. These are generally 10 mm. × 5 mm. The corners are pointed and the genital opening, situated on a well-marked protuberance, is on the side of the proglottis. The persisting uterus is easily seen and consists of a median stem giving off 8-14 branches. The intermediate hosts are such as the rabbit, mouse and rat.

Tænia hydratigena (*T. marginata*) has very similar ripe proglottides to the last, and they also are markedly rectangular. The genital pore does not lie so far forward as in *T. pisiformis*. The uterus has a median stem, giving off 5-10 side branches. The proglottides are, on the average, 12 mm. × 6 mm. The cysticercus form is found generally in ruminants.

Very similar are the ripe members of *Multiceps multiceps* (*T. cœnurus*). From the median uterine stem 9-26 side arms are given off and the proglottis is (average) 9 mm. × 3-4 mm. The echinococcus develops in the brain of sheep and other ruminants, occasionally also in man and other mammals.

The ripe proglottides of the small cestode *Echinococcus granulosus* (*T. echinococcus*) may be recognised by their size, the whole worm measuring only 4-9 mm. in length.

Examination of the fæces will reveal the presence of infestation by any of the mentioned cestodes.

The eggs of the common ascaris, *Toxocara canis* (*Belascaris marginata*) may be seen in microscopical examination of fæces as pale, brownish-grey balls, of a diameter of 0·075-0·08 mm. The surface is horny or scaly. In fresh fæces, the embryo is in the form of an unsegmented ball-like mass. In older fæces segmentation may have commenced, so that the two, three, or many-celled stage may be met with.

The hookworm *Uncinaria stenocephala* has oval, thin-shelled eggs about 0·08 mm. × 0·04 mm. In quite fresh fæces the four-cell stage is encountered. In older dung the segmentation may be very advanced, up to the stage of larval formation.

There is no anthelmintic suitable for the treatment of infestation with both cestodes and ascarides. An experiment was conducted using a number of infested dogs, with a drug supplied by the Chemischen Fabrik Marienfelde, containing a combination of "cestode and ascaris" anthelmintics. The results were very satisfactory; 0·6 gm. per 5,800 grams body weight sufficed to expel all cestodes and 0·6 gm. per 1,033 grams body weight expelled all ascarides within 24 hours.

J. H. M.

Sheep Dipping and Movement.

A conference of representatives of local authorities of the four South-Western counties and county boroughs, held at Exeter to discuss the movement and dipping of sheep, decided to recommend that the South-Western group join the much larger Midland Group, subject to safeguards against the importation of scab.

It was recommended also that an executive committee be set up to see that the regulations made are properly carried out, and the conference decided to ask adjoining counties to co-operate in giving effect to the recommendations.

N.V.M.A. Divisional Reports.

Mid-West and South Wales Division.

Annual Meeting at Bristol.

A Veterinary Film Display.

Performance of the duty of electing officers for the ensuing year, which was the principal item of the business section of the proceedings at the Annual General Meeting of this Division, held at the Grand Hotel, Bristol, on January 16th, 1931, was saddened by the knowledge that death had terminated the long and able period of service rendered to the Mid-West and South Wales V.M.A., by Mr. A. S. Adams, of Dursley, in the capacity of Hon. Treasurer. Occasion was taken to pay tributes of the deepest sincerity to the devoted activities of the deceased member, not only concerning the finances of the Division itself, but in regard to the local benevolent fund which, by his enthusiasm for it, Mr. Adams left in a position to render timely aid in such directions as the officers of the Division deem desirable.

At this meeting, later in the programme, the members were privileged to participate in the instructional enjoyment which those responsible for the Royal Veterinary College Film Library have so willingly made available to practitioners attending N.V.M.A. Divisional meetings in various parts of the country. On this occasion it was Professor J. G. Wright who accompanied the film operator, Mr. Southern, from London and introduced and enlarged upon the uniformly excellent pictures shown.

The retiring President, Mr. W. R. Watson, occupied the Chair at the commencement of the meeting, and there were also present Captain W. A. Austin, Captain J. J. Aveston, Mr. J. R. Baxter, Captain W. P. B. Beal, Messrs. E. C. Bovett, B. Gale, C. Golledge, S. V. Golledge, R. W. Hall, Major G. E. Henson, Captain J. R. Hewer, Captain J. Howard Jones, Mr. T. J. Margarson, Mr. R. Moore, Captain J. C. S. Powell, Messrs. C. J. Pugh, W. D. Rees, A. E. Roberts, H. S. Robinson, W. Scott, G. H. Thomas, F. Tonar, W. Webster and C. E. Perry (Hon. Secretary), together with the following visitors: Professor J. G. Wright, Mr. F. W. Southern and Mr. Arthur Watson.

The minutes of the last Annual General Meeting, having been published in the *Veterinary Record*, were taken as read and were confirmed and signed.

Obituary.—The President said that his first duty was to refer to the loss their Society had sustained through the death of Mr. Adams, of Dursley. They all knew him personally as a man, as a veterinary surgeon and as a member of their local Association, and in each capacity they could only describe him as one of the best. Personally, he (the President), had lost a great friend, while the Association mourned a most enthusiatic member, who was never absent from their meetings when he could possibly get to them.

The Hon. Secretary, in associating himself with the President's observations, said that when they heard that Mr. Adams had passed away, the President and himself arranged to attend the funeral as representing the Association—there were several other members of the profession present—and also for the sending of a wreath. The meeting approved the action taken, and stood for a moment in silent tribute to the memory of Mr. Adams.

Correspondence.

(1) Apologies for absence from Messrs. J. C. Coleman, Hall Masheter, P. J. Mullane, Major D. M. Storrar and Mr. E. J. Thorburn.

(2) From the Secretary of the N.V.M.A., stating that he had placed the following resolution received from their Division, namely:—

> "That this Association is of opinion that the time has arrived when legislative measures should be introduced, making it illegal for any person or persons other than duly qualified veterinary surgeons to administer active biological products in animals"

before the Council of the N.V.M.A. at a meeting held on January 5th, together with a report of the Parliamentary Committee thereupon. The Council (the letter continued) was in sympathy with the resolution and it had been decided to make representations on the subject to the Ministry of Agriculture.

The Hon. Secretary expressed the opinion that the reply to their resolution was a very satisfactory one. (Hear, hear.) A copy of the resolution had been sent to the Royal College of Veterinary Surgeons, but without result.

(3) From the Victoria Veterinary Benevolent Fund, gratefully acknowledging the receipt of the contents of the collecting box for the year—£3 13s. 6d.

Hon. Treasurer's Report.—The Hon. Secretary observed that the death of their Hon. Treasurer, Mr. Adams, had left them in a somewhat awkward predicament, as, though financially their position was quite satisfactory, they did not know the exact position of affairs. Major Henson had been acting for some little time, and he would doubtless be able to enlighten them somewhat.

Major Henson now made a general financial statement, showing that both the general account of the Division and the benevolent fund account were in a satisfactory condition, and concluded by saying that he would endeavour to present a balance sheet to the next meeting.

Mr. Scott, having been informed (in reply to his question) of the amount of the capital fund lying to the credit of the Division, said that he enquired with a specific object. Mr. Adams had been the *prima facie* mover in maintaining and augmenting the funds of the Society, indeed, he ventured to say that had it not been for him that capital fund would not have been in existence. Therefore, he thought that very great credit was due to the late Mr. Adams, and he felt that it would be a very gracious and grateful gesture on their part if they did something to commemorate his memory by taking a small fraction of that capital fund to perpetuate his memory with it.

The meeting decided to refer this suggestion to the Council of the Division for sympathetic consideration, and Major Henson's financial statement was then adopted, on the proposition of the Hon. Secretary, seconded by Mr. Roberts.

Secretary's Report.

The Hon. Secretary (Mr. C. E. Perry), presented his report for the past year, as follows:—

"During the year we have held the Annual General Meeting, the Quarterly Meetings, and four Council Meetings. Average attendance at the Quarterly meetings has

been 33, and that at the Council meetings 12, out of a total of 17 Council men.

"The present membership of the Society is 71, including seven hon. members. I regret to have to report the death of our late Treasurer, Mr. A. S. Adams—a very great loss to the Association, he being one of the founders and a great financial supporter of the Association.

"We are indebted to Mr. Steele-Bodger for opening a discussion on the 'Eradication of Bovine Tuberculosis,' at our Annual meeting; to Mr. Oscar Stinson for demonstrating 'The Crucial Incision Operation' and 'Spinal Anæsthesia,' and also for a paper on 'Contagious Abortion in Cattle.' We have, too, to thank our old friend and founder-member, Mr. W. M. Scott, for the privilege of visiting his house and grounds for our Summer meeting. Mr. Scott and his daughters made us particularly welcome and the grounds were very much enjoyed by the members and ladies present.

"Captain Atkinson gave us a very interesting and practical paper on 'The Diagnosis of Anthrax.'

"Last, and not least, our thanks are due to Mr. Glover, who came down from Cambridge to demonstrate to our members, at the Bridgend meeting, 'The Double Intradermal Tuberculin Test.' Our thanks also are due to Mr. Howard Jones for making the arrangements for the meeting."

In amplification of his report, Mr. Perry commented that he thought it spoke well for the energy and enthusiasm of their members of Council that the average attendance at Council meetings was 12 out of a total of 17 members. (Hear, hear.) He did not wish to make invidious distinctions where so excellent a series of papers and demonstrations was concerned, but he desired to say that, in his view, Mr. Oscar Stinson's demonstration at Bath was one of the most practical items they had had given them in the history of their Association. He himself had made great use of the crucial incision operation, while he knew of several practitioners who, following upon Mr. Stinson's demonstration, were now carrying out spinal anæsthesia.

Proceeding, the Hon. Secretary observed that there could be no doubt that altogether they had had a very busy and successful year; it was particularly pleasing to note that not only had their Council meetings been so well attended, but their general meetings had enjoyed the fine average attendance of 33 members and visitors.

The President remarked that they had listened with interest to a very satisfactory report from their Secretary on the activities of the Association during the past year. If, as he was sure was the case, the members had enjoyed the year as much as he (the President) had done, then they must indeed have derived much benefit and pleasure from their activities, as a Society, during that period. They were greatly indebted to Mr. Perry for the excellent work he had performed on their behalf during the year as their Secretary. (Applause.)

Election of Officers.

President.—The Hon. Secretary informed the meeting that it was the unanimous recommendation of the Council that Mr. R. Moore should be the President of the Association for the ensuing year. (Applause.)

The Chairman proposed accordingly, observing that he was confident that the Association could not elect a more suitable president than Mr. Moore, or one who had been more loyal in his attendance at general or council meetings.

Mr. Hall said that, as a South Wales member, he had very great pleasure in seconding the proposition.

Mr. Moore, in acknowledging his enthusiastic election, expressed his deep sense of the honour which his fellow members of that important veterinary association had conferred upon him by electing him as their President. He looked forward, with their assistance and support, to a successful year—if possible, as successful as that enjoyed under his predecessor, Mr. Watson: that was as much as they could hope for. (Hear, hear.)

The newly-elected President now took the Chair, and conducted the remainder of the business.

Vice-Presidents.—The retiring President, Mr. J. R. Barker, Major G. E. Henson and Mr. C. J. S. Powell were unanimously elected, on the proposition of Mr. Rees, seconded by Mr. Scott.

Hon. Secretary.—From the Chair, Mr. Moore proposed, with great pleasure, the re-election of Mr. C. E. Perry who, said the President, had been a most excellent Secretary and one always "up to the mark." He was well aware that all who had preceded him in the Presidential Chair realised that, without Mr. Perry in support as Secretary, they would have had a far more difficult and less successful year of office, and he was certainly not less dependent than they upon the ability of the Secretary.

The proposition was carried with acclamation, and Mr. Perry returned thanks for his re-election.

Hon. Treasurer.—The Hon. Secretary informed the members that it was the unanimous recommendation of their Council that Major G. E. Henson be elected to this office in the room of the late Mr. Adams.

Mr. Bovett seconded, and the meeting endorsed the Council's recommendation.

In returning thanks for his election, Major Henson observed that, while he would be happy to do his best for the Association in the capacity of its Treasurer, he could not hope to emulate the proficiency of the late holder of the office.

The following resolution was now passed (for forwarding to the bankers of the Association) on the proposition of Mr. A. E. Roberts, seconded by Captain J. R. Hewer: "That Mr. G. E. Henson's name be substituted for that of Mr. A. S. Adams as Hon. Treasurer of the Mid-West and South Wales Veterinary Medical Association."

Auditors.—Messrs. A. S. Watson and J. C. S. Powell were elected as Auditors, on the proposition of Mr. Rees, seconded by Mr. Roberts.

Council.—The Council was elected as follows:—Messrs. Aveston, Barker, Bovett, Coleman, Hall, Hewer, Howard Jones, Hall Masheter, Powell, Rees, Sayer, Scott, Seldon and Watson, with the officers of the Association as *ex-officio* members.

Representatives to Council, N.V.M.A.—The Hon. Secretary read a letter from the Secretary of the N.V.M.A. informing the Division that, in consequence of an alteration effected in the Articles of Association of the Association, the basis of divisional representation upon the Council had been altered to the Hon. Secretary (if any) and one representative to every 35 members or portion of thereof. As the membership of that Society was 71 (continued the Hon. Secretary) they were now entitled to an additional representative—three representatives, in addition to himself.

The following were elected: the President, Mr. Coleman and Mr. Watson, with the Hon. Secretary (*ex-officio*).

Nominations for, and Elections to, Membership.—Mr. Robinson, speaking on this item, said that he desired to give formal notice of motion that, at the next meeting, he would move that the rules governing the nomination and election of new members should be amended to permit of both procedures being carried out at the same meeting in respect of any prospective new member.

The Hon. Secretary observed that, in practice, this method had been followed for some time past.

In these circumstances, nominations and elections forthwith were made in respect of the following gentlemen: Captain W. P. B. Beal (Bath), Messrs. C. R. Golledge (Trowbridge), S. V. Golledge (Trowbridge), G. H. Thomas (Llanddeusant) and L. A. Watson (Cardiff).

Alteration of Entrance Fee.

The Hon. Secretary said that the next business was to consider the recommendation of the Council of the Division that the entrance fee be reduced from £1 1s. to 10s. 6d.

Mr. Margarson: What do these newly-elected fellows pay? (Laughter.)

The President: One guinea.

Mr. Watson proposed that the recommendation of the Council be accepted.

Mr. Rees, in seconding, expressed the opinion that the proposed change would be a move in the right direction, as he was confident that the additional half-guinea had been the means of keeping out of the Division a good many veterinarians within their area, and he believed that its removal might result in their accession to membership.

The Hon. Secretary, speaking in support of the proposition, observed that more than a dozen gentlemen had been proposed as members of the Division who had never paid their entrance fee and subscription. There was no doubt that in such cases the guinea was the stumbling block, and, indeed, it was rather much to demand that in his first year the new member should pay both £1 1s. entrance fee and 10s 6d. as subscription.

The Secretary proceeded to read a reply which he had received from the N.V.M.A. to his request to be informed as to the practice in other veterinary societies. It appeared that most demanded half-a-guinea as fee, but that some Northern Divisions were considering the increase of their annual subscription from that sum to one guinea with a view to establishing funds for the payment of expenses incurred by their representatives in attending "National" Council meetings. These Divisions, however, were not contemplating any increase in their entrance fee.

The proposition was now put to the meeting and carried unanimously.

Veterinary Film Display.

The President said that he had very great pleasure in calling upon Professor Wright, of the Royal Veterinary College, London, to give them his demonstration of pictures from the College Film Library.

Professor G. J. Wright, who was received with applause, said that he hastened to state that it was to Principal Hobday that they owed that film demonstration that afternoon; he saw the potentialities of the cinematograph as an aid to veterinary teaching, and, with his usual zeal, he pursued it, though the financial difficulties with which he had to deal at the Royal Veterinary College had not made his task easy. It was to the late Captain Louis Sewell that the College was indebted for the projector that it possessed. On realised that the pictures they had were imperfect, but they hoped to improve, and he must say—and he felt that they would agree with him when the display was in progress—that he thought that their operator, Mr. Southern, had done well in producing such good pictures with the small apparatus and the material at his command. They were all novices at film production and scenario writing, and they would also notice that the so-called sex-appeal so essential to most film entertainments had not been introduced. (Laughter.)

For pictures of the large animals in movement, bright daylight was necessary, a thing they rarely encountered in Camden Town in these days, but for small animal work they possessed powerful artificial lights.

The educational value of the cinema had long been recognised, but he thought that was the first serious attempt to use it in veterinary teaching in this country.

As an adjunct to the teaching of surgery, it was valuable. It was difficult by the spoken word alone to depict an adequate picture of the various types of lameness in the horse. A typical case might not present itself at the right time, but a film could be immediately thrown upon the screen demonstrating those peculiarities the teacher wished to stress.

The demonstration of characteristic symptoms not only applied to lameness but to many other diseases with which they came into contact.

In operative surgery, manipulative skill could only come as the result of practice upon the cadaver, but a detailed film, showing the various steps, served a much more useful purpose than an elaborate text-book description, which usually failed to convey any idea of the proportions of the various structures encountered.

Whilst the great amount of material they had at their command sufficed for the practical demonstration of many operations, there must of necessity be many, particularly in the larger animals, which were not available when required.

In this latter connection one might refer to obstetrics. The symptoms of approaching parturition were now made available for the study of the undergraduate in the class-room, where they were now also able to demonstrate the course of normal labour. He thought it was essential that the student should have a sound idea of normal physiological processes before he passed out into the formidable sphere of practice. (Applause.)

The film series commenced with a picture exhibiting various types of lameness, every abnormality of stance and progression being clearly revealed, together with the effects of the application of remedial, including operative, measures. Many types of lameness followed each other in informative succession, the film concluding with some interesting examples of lameness in the dog.

The excellent picture of the cryptorchid operation, performed by Professor Hobday, and also previously described in the *Record*, followed, and then came a new film of exceptional merit in a pictorial exhibition of artificial insemination for the production of Zebra-mare hybrids. Professor Ivanov, the producer, sanctioned the taking of a copy of this film for the Royal Veterinary College Film Library, and it is certainly a notable addition to the

collection; the photographic technique being as finished as the subject is interesting.

Of great value to the student, at least, was the next picture, showing normal parturition in the goat and cow, while the importance of operative asepsis was stressed in the succeeding film depicting castration of the dog. Appropriately included in the programme was a film detailing what may be described as Professor Wright's speciality at the moment—the production of anæsthesia by the use of "Avertin." Members were impressed by the ease and safety of administration of the drug per rectum to such an awkward subject of anæsthesia as the cat, and by the profundity of the degree of anæsthesia produced, enabling the performance of castration without the application of any means of restraint.

A remarkable degree of clarity in the presentation of detail was the outstanding feature of the concluding film, showing performance of operation for inguinal hernia in a bull terrier bitch, by Professor McCunn and Mr. Formston. An interesting "incidental" was the use of an electrical blower for wafting air continuously over chloroform in the production of safe anæsthesia.

Following the demonstration, the President observed that they had been privileged to witness a most interesting and instructive series of veterinary films, for the exhibition of which they were deeply indebted to Professor Wright and the operator, Mr. Southern. If the members had any questions to ask, he was sure that Professor Wright would be pleased to answer them. There being no response, the President invited further observations from the demonstrator.

Professor Wright, complying, said that, even if the films had raised no queries in the minds of the members, he trusted that they shared the President's view that they were both interesting and instructive. (Hear, hear.)

With regard to the picture of lameness in horses, they had doubtless noted a number of faults; they would appreciate the fact that with a small apparatus the filming of lame horses was somewhat difficult, as in progression the animal rapidly passed in and out of focus, and the task of the operator in endeavouring to keep it in focus was a very arduous one, while the difficulty of light and dark backgrounds was ever present.

He considered that the obstetrical pictures were admirable, for all veterinary students were not *au fait* with normal parturition, and it was essential that they should be perfectly familiar with all that was meant by the phrase "an animal in labour."

With regard to the picture of parturition in the cow, they were exceptionally fortunate in that they were able to demonstrate some of the difficulties with which the veterinary surgeon had to contend in calving cases. Students had to learn the amount of traction that could with safety be applied to a cow, and he thought it was just as well that they should learn such things at the Royal Veterinary College and that they should not have to leave the acquisition of such knowledge until they went out into practice.

One or two points were brought out in the other pictures; one he might mention was the use of barium sulphide as a depilatory, as shown in the preparation of the area of operation in castration of the dog; another was the use of "Avertin," newly introduced into veterinary practice for the production of narcosis in the smaller animals.

Also worthy of attention was the importance of asepsis even in so comparatively simple an operation as castration of the dog. Provided reasonable asepsis was observed, comparatively enormous operations could be carried out in animals and healing by first intention secured. At the Out-patients' Department of the College they had speyed about 250 cats during the past 12 months, and in 90 per cent. of cases they had had healing by first intention. He thought that was a great improvement on the old practice of comparative antisepsis.

He had been asked whether they always used "Avertin" in young cats. They did not; the operation of speying was performed usually in 7-10 minutes, and for that reason it was hardly necessary to provoke anæsthesia for so long a time as 24 hours. "Avertin" was particularly valuable for the performance of operations about the mouth, in which cases continuous inhalation is difficult to carry out. Moreover, cats were decidedly dangerous in the stage of excitement which accompanied recovery from the effects of inhalation. They used "Avertin" for teeth extraction in cats, for the extraction of needles or other foreign bodies from the throat. He desired to emphasise that it was particularly in operations about the head and mouth that "Avertin" was destined to be a very valuable adjunct to their knowledge of anæsthetics. (Applause.)

The President proposed a very hearty vote of thanks to Professor Wright for the trouble he had taken in travelling to Bristol to give their Association so admirable a combination of entertainment and instruction; also to Mr. Southern, for his essential part in the proceedings. He was sure they had all learned something from the films, and could quite appreciate what a benefit they must be to the veterinary student.

Mr. Watson, in seconding, observed that he regretted that the veterinary film was not in evidence when he was a student, it gave one so much better an idea of the condition depicted than could any diagram or text-book description.

The vote of thanks was carried with enthusiasm, and Professor Wright having made suitable acknowledgment, the meeting concluded.

The members subsequently spent a pleasant social hour together at the tea tables.

C. E. Perry, *Hon. Secretary.*

Worshipful Company of Farriers.

Appeal for the Royal Veterinary College.

Sir Frederick Green, Master, presided on January 30th in London at a livery dinner of the Worshipful Company of Farriers, and proposed the civic toast, to which the Lord Mayor replied.

Sir Robert Mansell gave the toast of "The Company," and the Master, responding, said that he was a practical shoeing smith, and as one who had served two years before the mast and as a Colonel in the Territorial Army, he could speak of the love for the horse held by both sailor and soldier. Whether the horse trade of this country was decreasing or not, the shoeing smith was still attending to the horse. With the assistance of the College of Veterinary Surgeons, the company had granted 9,000 certificates of registration for shoeing smiths.

Past-Master H. Roper Barrett, proposing "The Livery," said that the Royal Veterinary College was in dire straits, and it would be a very unfortunate thing for the horse if that institution were to be allowed to suffer for the sake of a few thousand pounds.

Professor F. T. G. Hobday responded.

Lancashire Division, N.V.M.A.*

Meeting at Manchester.

A General Meeting of this Division was held at the Grand Hotel, Aytoun Street, Manchester, on Friday, November 28th, 1930.

The Chair was occupied by the President, Mr. E. H. Curbishley, and other members present were Messrs. A. W. Noel Pillers, W. G. Burndred, A. J. Burndred, Warwick Fowle, J. Cochrane-Dyet, H. D. Heggarty, W. Woods, W. Walker, F. Hopkin, J. O. Powley, G. H. Locke, R. C. Locke, J. Holroyd, H. Sumner, junr., K. D. Downham, A. J. Wright, J. C. Naylor, and John Spruell. Mr. G. H. Livesey was present as a visitor.

Apologies for unavoidable absence were received from Messrs. E. F. Wood, W. Tweed, R. Hughes, P. Gillespie, and Colonel Brittlebank.

The minutes of the previous meeting were taken as read.

Correspondence.

(1) From Mr. R. Rimmer of Kendall, tendering his resignation. It was resolved that the resignation be accepted with regret.

(2) From the General Secretary of the National Veterinary Medical Association with regard to (1) the desirability of all veterinary surgeons becoming members of the "National" and suggesting that the Lancashire Division set up a Propaganda Committee, and (2) drawing attention to recent alterations to Articles of Association.

Removal from List of Members.—It was proposed by the Hon. Treasurer (Mr. Noel Pillers) seconded by Mr. G. H. Locke, and unanimously carried, that a member be removed from the list of members owing to non-payment of annual subscriptions and his removal from the district.

Election of New Member.—Mr. H. Burrow, M.R.C.V.S., D.V.S.M., Birkenhead, was elected a member of the Division.

Nomination of Hon. Associate.—The President referred to the distinguished services rendered to the Veterinary profession by Mr. Henry Sumner, senr., of Liverpool, a much respected member of this Division, and he formally nominated Mr. Sumner, from the Chair, as an Hon. Associate of the Lancashire Veterinary Medical Association.

Address.—The President now called upon Mr. G. H. Livesey, of Blackheath, to give an address, entitled "Some Observations on Everyday Dog Practice." The address promoted a useful discussion, and is reproduced, together with discussion report, earlier in this issue of the *Record*.

A vote of thanks to Mr. Livesey, proposed by Mr. Sumner and seconded by Mr. Holroyd, was carried with acclamation. Mr. Livesey responded in suitable terms.

Council Report.

The following recommendations of the Council were approved and adopted:—

"That there be no Annual Dinner, the funds to be devoted to the summer meeting of the Division in lieu thereof.

"That the Hon. Secretary prepare an annual report on the whole of the business done by the Association during the year.

"That a register of attendances of Council meetings be kept.

"That members of the Association be invited to suggest subjects for discussion and to communicate with the Hon. Secretary regarding same."

Notices of Motion.

Proposed by the President.

Proposed New Rules.

iii (*a*) "The President and Council jointly shall arrange for suitable papers, addresses, discussions and demonstrations to be presented or initiated by a veterinarian, scientist, or other learned gentleman, at the meetings of the Association, and the President shall undertake all necessary correspondence in regard to the same."

xvi (*a*) "In the manner prescribed in Rule XVI and subject to the same conditions and privileges (except that they shall remain subscribing members), the Association may elect Honorary Councillors, who shall be entitled to receive notice of all Council Meetings and to attend and vote at same."

xvi (*b*) "Members to be eligible as Honorary Councillors must be or have been Office-bearers and have been members of the Association for a period of not less than 15 years."

The meeting concluded with a vote of thanks to the President.

John Spruell, *Hon. Secretary.*

* Received on January 12th.

Negligence Charge Against Practitioner Fails.

In the Redhill County Court recently, before His Honour Deputy Judge A. W. Bairstow, K.C., Captain W. J. Cooper, Veterinary Surgeon, of Reigate, claimed the sum of £18 18s. 6d. for professional services from Mr. A. G. Cowley, of Horley, who alleged negligence in the treatment of a colt upon which Captain Cooper had performed an operation and which had subsequently died, and counter-claimed £150, the value of the colt.

The plaintiff was represented by Mr. A. Gordon Jones, barrister, and the defendant by Mr. C. A. Cowan, barrister.

Mr. Jones explained that the fees claimed by the plaintiff included a four-guinea fee for a "standing operation" for castration, performed in June last year. There were subsequent visits at somewhat unusual times, fees for which the defendant considered should not have been charged. Mr. Cowley had not, at that time, complained about his treatment of the horses, or of the charges, but he understood the defendant was now resisting these charges on the ground that they were excessive.

Complainant, in the witness-box, answering his Counsel, said that for a "standing operation" on a blood horse a minimum fee of five guineas and *pro rata* upwards would not be uncommon. He had arranged to charge Mr. Cowley four guineas for the operation alone. In describing his technique Captain Cooper mentioned that he used an emasculator. Cross-examined, complainant admitted there had been secondary hæmorrhage the same day and upon the following morning, but denied that this was excessive or that he had hurried the operation. Upon subsequent visits he plugged and sutured the wound, and no further bleeding occurred up to the time the colt died, five days after the primary operation.

He did not consider that death was due to shock or hæmorrhage, but to a catarrhal affection which developed later.

Major Hamilton Kirk, M.R.C.V.S., stated that he thought four guineas was quite a reasonable fee for the standing operation, bearing in mind the personal risk attending such work, the fact that considerable technical skill is essential, and that the plaintiff had to travel ten miles.

Witness said he usually charged one guinea for emasculating even a dog or a female cat under anæsthetic. Pressed by defending Counsel as to why some veterinary surgeons charged only two guineas inclusive for this operation, Major Kirk replied that doubtless all medical and veterinary practitioners based their charges upon what they considered they were worth. Whilst a skilled surgeon might fix his fee at £500 for a major operation, another surgeon might charge only £25 for the same service.

His Honour: "Of course, there are sixpenny doctors; but half-crown vets."

Witness: "The 2s. 6d. veterinary surgeons may possibly be not so skilled as those who charge fees more commensurate with their expert services."

Howard Thomas Ancott, stud-groom to the defendant, said the operation was performed in a hurry; in fact, he had never seen castration performed so quickly.

His Honour: "Is quick performance evidence of negligence, do you think? That would not be my own opinion."

Witness continuing, said that the haste was the cause of hæmorrhage and the throat swelling which appeared later.

His Honour: "How do you know? Are you qualified to give an opinion? I resent your posing as an expert."

Witness: "I know from experience of other operations."

His Honour: "Have you seen throat swelling appear in other cases after castration?"

Witness: "No, sir."

His Honour: "Then you cannot speak from experience, as you do not know if the swellings are ever so induced."

Witness: "Captain Cooper was neurotic."

His Honour: "That's a strange word from a stud-groom."

Another witness for the defence, described as a kennelman, sought to advance his opinion upon the operation, but his Honour would not accept his evidence, as he had no qualifications which entitled him to speak upon the matter.

Samuel Smith, M.R.C.V.S., of Horsham, said he thought two guineas was a sufficient fee for the standing operation. That was all he charged. The swelling mentioned might have been due to wound infection. Cross-examined, he said he used clams for this operation, and considered the emasculator was dangerous. Asked by Counsel whether the emasculator was a recognised method, he admitted it was.

His Honour: "Then I am not concerned with the witness's method of operating. There is no negligence in employing a recognised method or instrument."

Mr. Cowley, defendant, in the witness-box, admitted that he had been in possession from the outset of the information as to the manner in which the operation was stated to have been performed, but had not previously alleged negligence. There had also been no *post-mortem* examination to prove the cause of death, but he did not consider the latter arose from strangles.

His Honour said there was no evidence of negligence in the case, and it was extremely unfortunate that such a serious allegation had been introduced. There would be judgment for the plaintiff (Captain Cooper) on both the claim and counter-claim with costs. He had no doubt but that the operation had been performed with reasonable care and skill.

The Royal Sanitary Institute.

As announced in our advertisement columns this week, courses of practical training for Meat Inspectors and for Associateship (Food Hygiene) will commence on Friday, February 20th, at 6 p.m. Full particulars can be obtained from the Secretary, 90 Buckingham Palace Road, S.W.1.

Erratum.—We regret that in our report of the R.C.V.S. Council Meeting, p. 161, the name of Colonel Brittlebank was omitted from the list of the Committee appointed to carry out the appeal for the Memorial to Sir Frederick Smith.

Line Breeding.

An Experiment with Dairy Stock.

Nelson Veterinary Surgeon's Work.

"An interesting experiment in the breeding of dairy stock and one that departs from orthodox methods was described by Mr. John Barker, M.R.C.V.S., of Nelson, to the members of the Burnley Agricultural Discussion Society on Wednesday," says the *Preston Guardian* of January 23rd.

"Mr. W. Edmondson, Cliviger, who presided, quoted figures showing the great decline in the cattle population. Scarcity was reflected in high prices, and to put milk production on a more economic basis increased attention to the breeding of dairy stock was essential.

"Mr. Barker launched his experiment in the line breeding of bulls in Mr. J. W. Astley's Southfield herd at Nelson, which was then under his supervision. The herd was later removed to West Marton, near Skipton, and was dispersed about six years ago. Following a disappointing experience with a pedigree dairy Shorthorn bull, it was decided to depart from the orthodox method of the pedigree breeder and aim at securing a succession of home-bred bulls from different dams but of the same male line. The idea was that by these means prepotency would be cumulative, and there was sought the type of cow which is now popular in the showyard, namely, a Shorthorn frame with fine shoulders, clean throat, activity, and an udder more of the Ayrshire pattern.

Foundation Stock.

"In looking for foundation stock it was decided there would be the widest choice amongst the non-pedigree dairy cows of the immediate district. A bull whose dam and granddam were perfect dairy cows was used, and it was decided to concentrate on this line. This differed from the methods of breeders who laid emphasis upon the female line, although several generations might have elapsed and the alien influences of other sires, some of them probably inferior bulls, had been introduced, so that few qualities might remain of the ancestor which originally gave celebrity to the family. When dealing with a class of cattle whose prices were based on commercial and not paper values, he thought they were proceeding on better lines; they had a wide field from which to choose, and their experiment would not be expensive.

"In aiming at a type they must continuously buy cows nearly as uniform in character as possible, and if alien blood was introduced, as it was in the third or fourth generation of this experiment in the form of a half-bred Ayrshire cow, they must be prepared to exercise patience until they had bred out objectionable features which might come with the outcross. From the half-bred Ayrshire they were fortunate to get first time a red bull which fitted his daughters with beautiful udders. A lot of calves came with black noses, but these, however, were later bred out.

Notable Ancestors.

"Mr. Barker enumerated several of the cows which gave celebrity to the Southfield herd, and from each of which bulls were used. These included Red Rose, which won in London for two successive years, and on the second occasion she was followed to the top by another herd companion in Nancy, which gave 72-lb. of milk and 3-lb. 11½-oz. of butter. Edna was a prize winner at the Dairy Show for three successive years, in the first of which she was in the hands of the late Mr. Tom Hunter, and then there was Mr. G. B. Nelson's Daisy, which created a world's butter record for twice milking in 24 hours by giving 4-lb. ¼-oz. of butter from 60-lb. of milk. Two of her sons were used in the herd, and they had a wonderful influence on their progeny.

"Of the home-bred heifers by the line-bred bulls two won in milking trials and one made a performance which up to that date had not been surpassed by the Jersey.

"When the Southfield herd was dispersed Mr. Barker persuaded a friend to buy the stock bull, the line was preserved intact, and the sire he was now using on his own farm at Gisburn represented the 13th generation and was from Nelson Queen, the roan cow which was third

in the open and first in the county class at Oldham, and calved on the field at the Royal Lancashire Show at Blackburn, where she had not time to make herself fit.

Influence of the Sire.

"He thought he could claim that this form of breeding had been carried on in one direct line for a greater number of generations than had ever been known. He believed it was Mr. Tom Barron who claimed that he got the best results in poultry breeding by rearing pullets from hens with great constitutions, and cockerels from hens with extraordinary productive powers, and that idea was exemplified in the line-bred bulls, daughters of which had been consistenly good milkers from the fifth generation.

"In the course of discussion Mr. Barker observed that it was far easier to breed a lazy animal that would get fat than to breed an active beast which would produce a large quantity of milk. If they introduced beef blood into the herd it would diminish dairy qualities if it did not actually eliminate them. In this country they had material from which to breed cattle of superb excellence. The type they wanted could be maintained and increased through the bull line without reverting to the beef quality. They introduced new blood through the female and this he regarded as the safest way. An exceptional cow might be a "sport," but if they had a succession of "sports" there was a cumulative effect on the offspring. Experiments on these lines were more easily carried out because they could have a bull at service at 12 months old and every two years they could get a new generation. Another great factor was the economy of the system, because the benefit of a bull of the desired type in a herd was incalculable."

Animal Diseases Research Association.

A New Department.

"Following upon the appointment to the Directorship of the Moredun Institute of Dr. J. Russell Greig, whose investigations with Professor Henry Dryerre, of the Royal (Dick) Veterinary College, had demonstrated the value of applied bio-chemistry in veterinary research, the Animal Diseases Research Association resolved to establish a Department of Physiological Bio-chemistry," says *The Scotsman* of February 3rd.

"Thanks to the munificence of the President, Mr. Falconer L. Wallace, supplemented by a grant from the Development Commission, important additions to the research staff of the Association have been made, and the Association have been fortunate in obtaining the services of Professor Dryerre as chief biochemist.

"At a recent meeting of the Association's Executive Committee, Miss J. W. M'Callum, PH.D., B.SC., was appointed as an assistant biochemist, and she has now joined the staff. This appointment marks the completion of an important new unit in the investigation of animal disease.

"An excellent suite of laboratories in the "Dick" College was available, but funds for equipment were lacking. The Highland and Agricultural Society, appreciating the possibilities of biochemical research in animal disease, generously granted a sum of money to cover the equipment of the laboratories, where, apart from the actual investigation of disease, provision has been made for the investigation of animal metabolism, and the application of therapeutical substances to disease. It may be said that the Animal Diseases Research Association now possess a biochemical department, which, in the extent of its accommodation and equipment, is among the finest in the country."

Prevention of Cruelty to Animals in Straits Settlements.

An important provision in a Bill introduced into the Legislative Council of the Straits Settlements makes it an offence for the owner of any animal, apart from active cruelty, to *permit* cruelty, and it is specifically provided that "an owner shall be deemed to have permitted cruelty within the meaning of care and supervision in respect of the protection of the animal therefrom." Another clause gives power to Government veterinary officers to arrest without warrant.

In Parliament.

The following questions and answers have been recorded in the House of Commons recently:—

Royal Veterinary College.

Lieut.-Commander Kenworthy asked the Minister of Agriculture whether he had now considered the copy of the resolution passed by the Council of the National Veterinary Medical Association of Great Britain and Ireland, on January 6th last, concerning the possibility of the closing down of the Royal Veterinary College in London and asking for assistance from the State; and whether he was considering taking action in view of the national and imperial importance of the College.

Mr. Hannon asked the Minister of Agriculture a similar question. Major Attlee (Chancellor of the Duchy of Lancaster) replied: My right hon. friend has considered the resolution in question, but he regrets that he can add nothing to the reply which he gave on November 27th.

. . . . .

London Traffic (Horse-Drawn Vehicles).

Lieut.-Commander Kenworthy asked the Minister of Transport whether he has any recent statistics showing the number of horse-drawn vehicles for the carriage of goods in regular use in the London area under his jurisdiction; and if he has reason to believe that the number of these horse-drawn vehicles is increasing?

Mr. Herbert Morrison: No information is available relative to the number of horse-drawn vehicles in regular use in London, but during a census taken one day in 1930 for a period of 12 hours at a number of important points in the London area, the number of horse-drawn vehicles registered as passing those points was about 30 per cent. less than the number recorded in 1927.

Lieut.-Commander Kenworthy: What steps is the Minister of Transport taking to deal with this matter?

Mr. Morrison: There are suggestions that horse-drawn vehicles should be prohibited in certain areas in London, but there is very strong opposition to that also. I think the figures indicate that the problem is in a fair way to solve itself.

Colonel Ashley: Are not horse-drawn vehicles, especially in the City of London, very useful indeed for the purposes of trade?

Mr. Morrison: There can be no question that, as a matter of sheer transport economics, for short distance journeys, with frequent stoppages, the horse is still the more economical.

Lieut.-Commander Kenworthy: Does that not mean continually stopping all the rest of the traffic?

Commander Bellairs: Could the right. hon. Gentleman say whether these horses are subsidised by the War Office?

. . . . .

Horses (Export).

Mr. D. G. Somerville asked the Minister of Agriculture the numbers of carcasses of horses which have been exported for food abroad within the last 12 months, the countries to which they were sent, and the net value of these exports?

Dr. Addison: As soon as the information desired is received from the Governments of the importing countries, I will communicate with the hon. Member.

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Tuberculosis.

Lieut.-Colonel Fremantle asked the Minister of Health how soon he will be able to publish the memorandum on human and bovine tuberculosis promised on February 6th, 1930?

Miss Lawrence: This memorandum is now being printed, and it is hoped to publish it at an early date.

Commander Oliver Locker-Lampson: Is there any report ready about the experiment on Mr. Buxton's estate in Suffolk?

Miss Lawrence: Not yet.

Spahlinger Vaccine.

Mr. Mander asked the Minister of Agriculture if he will give particulars of the experiments in connection with the Spahlinger treatment, now being carried out in association with the Government of Northern Ireland?

Dr. Addison: I have been informed that experiments with Spahlinger vaccine are being carried out by the Government of Northern Ireland, but I am not in a position to make any statement in regard thereto.

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Milk Products (Bacterial Investigation).

Mr. Lambert asked the Minister of Health whether he will take steps to place imported milk products on the same footing as milk products of home origin in respect of investigation as to their bacterial content?

Miss Lawrence: No bacterial standard is laid down for milk products as such, whether of home production or imported.

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Agriculture (Johne's Disease).

Major Harvey asked the Minister of Agriculture if he has information that Johne's disease is increasing in this country; if so, to what extent; and what steps are being taken with a view to the prevention of the disease?

Mr. William Whiteley (Lord of the Treasury): I have been asked to reply. The Ministry has issued within the past few days an advisory bulletin on Johne's disease which deals with the steps stockowners may take with a view to its prevention. This bulletin may be obtained from the Ministry, price 3d., post free. A copy is being sent to the hon. and gallant Member. There are no statistics showing the extent of the disease.

Mr. Smithers: Is this disease compulsorily notifiable?

Mr. Whitley: No, Sir.

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Protection of Animals (No. 2) Bill.

Mr. Freeman asked the Prime Minister whether he will provide facilities for the Protection of Animals (No. 2) Bill, which prohibits the hunting of deer, to be passed into law?

The Prime Minister: In view of the state of public business, I fear I can hold no hope that time will be found for the discussion of this Bill.

Mr. Freeman: In view of the public outcry against this barbarous form of organised cruelty, cannot the right hon. Gentleman say whether some time will be found?

The Prime Minister: I should like to point out to my hon. Friend that he has not yet succeeded in getting a Second Reading for the Bill.

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Vivisection.

Mr. Freeman asked the Home Secretary how many experiments on living animals were conducted last year at the Royal Veterinary College and by the advisors or professors associated with the college?

Mr. Clynes: The number of experiments conducted last year by members of the staff of this college was 761.

Notes and News.

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events.

Feb. 16th.—N.V.M.A. Committee Meeting, at 2 Verulam Buildings, Gray's Inn, W.C.1 :—Editorial, 4.30 p.m.

Feb. 20th.—Meeting and Annual Dinner of the Midland Counties Division, N.V.M.A., at Birmingham.

Feb. 20th.—Annual General Meeting of the Eastern Counties Division, N.V.M.A., at Norwich.

Mar. 13th.—Yorkshire Division, N.V.M.A.; Dinner-dance at Leeds.

R.C.V.S. Obituary.

Hill, William, 19 Grenville Drive, Kirkhill, Cambuslang, Glasgow. Graduated Glasgow, December 15th, 1906. Died January 28th, 1931; aged 47 years.

New Standards for Milk Tests.

Grant from the Empire Marketing Board.

The Empire Marketing Board, at its last meeting approved a grant for two years for an investigation into the technique of milk examination by the London School of Hygiene and Tropical Medicine.

The present standards for the bacteriological grading of milk were established in 1923. It has since become clear that they are not sufficiently complete, and in view of their great importance in securing a thoroughly reliable "clean milk" supply, it has been decided to work out a new technique to be accepted as the official standard in all cases of litigation.

Personal.

Mr. Alexander Crabb's New Year Honour.—Our attention has been drawn to the fact (which escaped announcement in the Press lists perused by us) that Mr. Alexander Crabb, F.R.C.V.S., was awarded the C.M.G. among the New Year Honours. On behalf of the profession we are glad to offer our hearty, if belated, congratulations to Mr. Crabb as the sole representative of the profession in the new Year Honours List.

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An Octogenarian in Practice.—"Mr. James Webb, of Windsor, who has just attained his eightieth birthday, has been in constant practice as a veterinary surgeon for nearly 61 years," says the Windsor Correspondent of the *Evening News*. "He has never been away for a holiday; drives his own car; rides a bicycle, and on horseback; performs surgical operations and never has a doctor.

"Mr. Webb told me that be believes in taking plenty of outdoor exercise, walking erect, allowing plenty of fresh air in the house, both day and night, avoiding turning night into day, and avoiding laziness."

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Appointments.—At a recently-held meeting of the Devon Diseases of Animals Sub-committee, Mr. P. Fisher (Okehampton) and Mr. H. G. McShane (Honiton) were appointed veterinary inspectors in succession to the late Mr. Dunstan and Mr. T. Y. Ranson, respectively.

Mr. A. M. Trotter's Tuberculosis Eradication Reports.

The Markets Committee of the Glasgow Corporation have approved a report submitted by their Chief Veterinary Officer on the eradication of bovine tuberculosis, and are forwarding it to the Minister of Agriculture for his consideration.

This report states that they are convinced that it is a preventable disease. The importance of a national crusade is emphasised and the Corporation considers that any money expended in that direction would be well invested. It seems, the report adds, there is little doubt but that human victims of bovine tuberculosis contract the disease through the consumption of infected milk.

In a report to the Corporation published two years ago it was advocated that (1) the veterinary practitioner carry out the routine inspection of all dairy cows once a month when housed, and once every two months when pastured; (2) the establishment of a central control in Scotland; and

(3) the equipment of a laboratory for the examination of all samples of milk and other materials. "When it is remembered," says the *Meat Trades Journal* in commenting on the report, "that in Glasgow alone the value of the meat surrendered on account of tuberculosis is £30,000 per annum, the cost of giving effect to these suggestions in Scotland, £120,000 a year, seems trifling."

The Royal Agricultural Society.

The sympathy of agriculturists in England with those in New Zealand who have suffered by the earthquake was expressed at the meeting of the Council of the Royal Agricultural Society on February 4th. It was decided to send a telegram to Lord Bledisloe, the Governor-General of the Dominion. The Council appointed Professor J. A. Scott Watson, of Oxford, as the editor of its journal, in the place of the late Mr. C. J. B. Macdonald. The Society's Veterinary Committee had considered the experiments in Norfolk conducted by Dr. Spahlinger in demonstrating the effect of his vaccine as a preventive of tuberculosis. Sir Merrik Burrell reported that the committee had been much impressed with the work Dr. Spahlinger had done with the help of Major Buxton, and he had recommended the Society to ask the Royal Veterinary College to investigate the system and report to the Society on the possibility of further experiments.

The Wellcome Foundation Medical and Chemical Research Building.

The Wellcome Foundation, Ltd. is about to erect a new medical and chemical research building at the corner of Gordon Street and Euston Road on the site, 225 feet by 135 feet, now partly occupied by their Bureau of Scientific Research. During many years the Foundation has maintained medical and chemical research laboratories, but recent developments have made it necessary to co-ordinate and extend these activities. The new building will furnish the additional accommodation required, and be provided with the most modern research equipment. Mr. Septimus Warwick, F.R.I.B.A., is the architect.

Research Achievements in Australia.

"How the Council of Scientific and Industrial Research is saving Australia many thousands of pounds a year is revealed in that body's latest report, issued here," writes the Canberra correspondent of the British United Press.

"Among the achievements claimed by the Council are:—

"The increasing of the weight of a sheep's fleece in some districts by 30 per cent. by the use of certain supplementary proteins in feed.

"The discovery of an effective vaccine against black disease in sheep, which has caused Australia an annual loss of £1,000,000.

"It is stated that Australia loses £12,000,000 a year through plant diseases and insect pests, not taking into account the worst of all pests, the rabbit, the destructiveness of which is partly compensated by the revenue from the sale of skins used in making gloves, felt hats and coney fur.

Use of Ultra-Violet Rays.

An Experiment at Derby.

In conjunction with Dr. A. R. Laurie, a medical officer of the Derby Education Committee, Sir Leonard Hill has just completed an investigation into the value of ultra-violet ray therapy. He chose 400 children at random from various districts of that town. These were divided into four groups and examined by six doctors who were completely ignorant regarding the groups in which the various children had been placed. The first group were then given ultra-violet treatment twice weekly for 16 weeks. The second group were given each day a pellet containing concentrated Vitamin D. The third group were given a similar pellet, but with no Vitamin D, and were also given treatment with a lamp which screened off the ultra-violet rays. This was to prevent the children knowing what treatment they were getting. The fourth group had no treatment at all.

At the end of the test the children were examined by the same six doctors in respect of height, weight, sleeping, appetite, and other points. In every case it was found that the children in the first group, who had been given ultra-violet treatment, showed marked improvement over the other groups. All the cases which made "spectacular improvement" were in the ultra-violet group, and this was the only group in which parents expressed grateful thanks for the improvement in their children.

Commenting on Sir Leonard Hill's test, the *British Journal of Actinotherapy*, which publishes a full report refers to the criticisms of ultra-violet light treatment made in a report by the Medical Research Council in 1929.

A Horses' Rest Farm has been established by the Scottish Society for the Prevention of Cruelty to Animals at Mansfield, Balerno, near Edinburgh, to provide rest and veterinary treatment for the horses of poorer owners who are in difficulty about the welfare of their animals, upon which they depend for their livelihood.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.

All correspondence must bear the name and address of the contributor for publication

The Editor does not hold himself responsible for the opinions of his correspondents.

"Query" in your Issue of January 17th, 1931.

To the Editor of the Veterinary Record.

Sir,—I must thank Mr. Tweed for his reply to the above, and my thanks are also due to Mr. Norbury, of Knutsford, for his letter sent direct to me.

The query was sent in order to stimulate a discussion upon procedures which are somewhat uncertain in their legality as far as the general practitioner is concerned.

Mr. Tweed's information in regard to the City of Sheffield is distinctly helpful, and in the right spirit, but one notices a very important proviso in his letter to the effect that the veterinary surgeon may take such samples, etc., "if he does not suspect any of the scheduled diseases": this proviso creates at once a huge difficulty, as it practically ties the hands of the practitioner straight away and acts as a grave deterrent to the taking of any samples, etc., in the cases mentioned in the query.

As far as I am concerned, I feel that I am under all circumstances permitted to take such samples, etc., and my procedure is warranted under Article 3 (2) Anthrax Order, 1928; section 2 definitely states that "a veterinary surgeon may take a blood sample acting on behalf of the owner of the carcass," therefore, if the Ministry allows such licence in suspected anthrax, surely the practitioner can carry out a similar procedure in respect to the dire cases mentioned in the query.

If the application of the mallein or tuberculin test means that one has a suspicion in one's mind that glanders or tuberculosis is suspected—and it does mean that—then the practitioner is debarred from carrying out such tests, especially that which refers to the testing of ponies under Part III, third schedule to the Coal Mines Act of 1911.

I am surprised at the poor response to the query. I certainly had great hopes that, in these days of post-graduate degrees, a few of these men holding B.V.Sc., D.V.S.M. and D.V.H. diplomas would have cleared up what is still a state of uncertainty—except in the case of suspected anthrax; possibly we may get a ruling from some of the whole-time Ministry Inspectors: they indeed, are reputed "to know the knowable, do the doable, and unscrew the unscrutable." Ruskin, I think, has said: "Such

help as we can give each other in this world is a debt to each other," and I, for one, would like to be under an obligation to, let us say, Arthur Gofton or D. S. Rabagliati if they could clear up the position on behalf of—

Yours faithfully,
CLEMENT ELPHICK.

Newcastle-on-Tyne.
February 9th, 1931.

Stuttgart Disease.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—With reference to the clinical note on the use of formalin in the treatment of the above disease, I should like to know if any other practitioner has tried thyro-manganese in capsule form, as made by Messrs. Armour & Co., in conjunction with a bismuth preparation, such as that made up by Messrs. Hewlett according to Professor Maclean's formula, and sold under the name of "Mist, Alkaline Co." I find that these preparations are easily retained. I have never noticed (I have no doubt I shall be told, if I am wrong) any reference made in the etiology of this disease to the fact that the majority of dogs attacked are often confirmed scavengers, and the symptoms have followed the feeding on decaying animal or vegetable matter.

Salol is a useful internal antiseptic too, in these cases, and I would once again draw the attention of practitioners to its value in cases of rat-bite poisoning in the dog, in which it would appear to be practically a specific. I know that some do not recognise this complaint, and I have had cases brought to me that have been diagnosed as lymphadenitis (owing to the practically constant lesion of swelling of the glands of the throat), cellulitis and so on, but the fact remains that the condition is due to a rat bite. Further, one attack appears to confer immunity.

Yours faithfully,
J. F. D. TUTT, M.R.C.V.S.

1, St. Cross Road,
Winchester.
February 3rd, 1931.

Horse *versus* Motor Transport.*

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Some considerable period ago, probably two years, I took a cutting from a newspaper or periodical—possibly from the *Veterinary Record*—describing the results of a trial of the comparative costings of horse *versus* motor transport. The trial was carried out by a large municipality.

It gave the costs, I believe, of transport per ton for distances one, two, three and more miles from a centre. The costs were much less for horses at the shorter distances.

Could any reader let me know where I may obtain a copy of these costings?

If so, I should be grateful.

Yours faithfully,
WILLIAM TART.

Veterinary Infirmary,
Trentham Road,
Longton, Staffs.
February 3rd, 1931.

* The information sought by our correspondent is obtainable in the Handbook of the Veterinary Congress held at Newcastle-upon-Tyne in September, 1928, in a paper by Major-General Sir John Moore entitled "The Horse as an Economic Factor," and the discussion on the subject, published in the *Veterinary Record* of October 6th, 1928. Further information on this point can be obtained from the National Horse Association of Great Britain, 12, Hanover Square, London, W.1.

The Editor acknowledges the receipt of the following:—
Communications from Captain A. W. Noel Pillers (Liverpool), Captain J. Forbes (Truro), Mr. R. H. Smythe (Camborne), Mr. W. Tweed (Sheffield) and Mr. D. E. Wilkinson (Chigwell).

Diseases of Animals Acts, 1894 to 1927.

SUMMARY OF RETURNS.

Period.	Anthrax.		Foot-and-Mouth Disease.		Parasitic Mange.§		Sheep Scab.	Swine Fever.	
	Outbreaks confirmed.	Animals attacked.	Outbreaks confirmed.	Animals slaughtered as diseased or exposed to infection.	Outbreaks reported by the Local Authorities.	Animals attacked.	Outbreaks confirmed.	Outbreaks confirmed.	Swine slaughtered.
	No.	No.	No.	No.	No.	No.	No.	No.	No.
Period 16 to 31 Jan., 1931	27	28	2	255	13	24	46	53	10
Corresponding period in—									
1930 ...	23	26	—	—	18	35	65	114	67
1929 ...	28	36	8	896	26	43	67	50	11
1928 ...	28	33	18	1,879	24	43	74	85	43
Total 1 Jan to 31 Jan., 1931	46	48	2	255	23	45	79	108	20
Corresponding period in—									
1930 ...	43	47	—	—	42	67	137	205	97
1929 ...	48	58	8	896	42	77	158	96	26
1928 ...	50	57	53	4,420	58	100	139	144	74